



## Repositioning feedback:

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Centre for Higher Education Research & Practice

# Perspectives on Pedagogy and Practice

Volume 6, December 2015

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# Foreword

I am pleased to have this opportunity to provide a short foreword to the sixth issue of the Centre for Higher Education Research and Practice's Journal, *Perspectives on Pedagogy and Practice*.

Loris Malaguzzi, founder of the Reggio Emilia approach to learning, proposed that children develop through interactions, first with the adults in their lives (parents and teachers), then with their peers, and ultimately with the environment around them. Environment, according to Malaguzzi, is the 'third' teacher. Watson (2010) argues that there is a relationship between the design of a space and the pedagogies and methodologies that it can support. Physical (and virtual) spaces can both enable or disable learning. (As an aside I recall a previous Professor of Architecture at Ulster telling me that he could design spaces that could result in previously happily co-habiting couples separating within three months!). Closer to home, much of current educational space is built to support didactic approaches to learning and teaching. Such approaches are unlikely to meet the expectations of our learners, fuelled by the possibilities offered by new and emergent technologies and their preference for more collaborative and immersive experiences, as well as the requirements of academic staff for interdisciplinary research.

The concept of Learning Landscapes (Dugdale, 2009; Neary et al, 2010) captures the interrelatedness of learning in the many kinds of physical and virtual spaces in which it can take place. Based on the enabling aim of the Learning and Teaching Strategy (2013/14 – 2017/18) 'to provide a supportive environment in which innovative approaches to learning, teaching and leadership are recognised, valued and rewarded, for all staff and students in the University', there are a number of ongoing developments encouraging the adoption and mainstreaming of interactive pedagogic approaches.

As we focus on the Ulster Student Experience and contribute to the formulation of the University's new Strategic Plan (2016/17 – 2020/21), our new campus developments will offer a unique opportunity for using

a greater range of flexible, technology-enabled learning environments, with more interactive, informal and social types of learning. Learning spaces should be ‘student-centred’ rather than ‘teacher-centred’. Such an orientation recognises the importance of encouraging and supporting multiple ways of learning, including social learning and virtual discourse. More specifically, its manifestations are likely to exhibit the following characteristics (Dugdale, 2009):

- collaborative, with active learning and group work;
- blended, with learning and other activities happening anywhere/ anytime, enabled with mobile technology;
- integrated and multidisciplinary;
- immersive with simulated or real world experiences;
- hybrid, combining online with face-to-face learning activities, augmented with mixed reality experiences.

Over the coming months and years CHERP, under the auspices of the Learning Landscapes project, will be working in partnership with Faculties to generate and support a number of Active Learning projects. These pilot projects will provide the opportunity to create evidence-informed practice which will impact upon our preferred future approaches to active learning in our new learning spaces on each of our campuses. Building upon existing good practice within the University, the pilots will also help to showcase and increase awareness of innovative pedagogies. The pilot projects will provide individual colleagues and course teams with the opportunity to test out new settings and teaching modalities. They will also offer opportunities to partner with Estates, professional and other learning support staff, as well as students as valued collaborators.

The pilot projects will also afford you an opportunity to demonstrate leadership in learning and teaching and, subject to being able to demonstrate positive impact, will help to provide supporting evidence for claims for HEA fellowship status aligned to the University’s Professional Development Framework. I would, therefore, encourage as many colleagues as possible to get involved and as part of their professional reflective practice and scholarship to consider disseminating their findings in future editions of the Journal.

More generally, however, I also hope that the Journal's readership will be inspired, encouraged and motivated to participate in the CHERP's activities in 2015/16 and consider disseminating relevant pedagogic research and practice through the Centre's Seminar series, conferences and Journal.

Finally, I would like to thank members of the Editorial Board, and in particular, the Journal's Editor, Michael Pogue, who gave generously of their time and talents in bringing this sixth edition to press.

Professor Denise McAlister, CBE  
Pro-Vice-Chancellor  
Learning, Teaching and Student Experience

## Editorial: Volume 6, December 2015

I have pleasure in welcoming you to the sixth edition of Ulster's learning and teaching journal - Perspectives on Pedagogy and Practice. In this issue ten articles present different aspects of learning and teaching practice from across the University.

In contrast to the five previous editions, which have focussed almost exclusively upon research articles, this edition also includes a range of shorter articles which we invited when sending out the Call for Papers for this edition. The Editorial Board believed that this initiative would encourage a wider range of contributions to the journal and we have been pleased to see a significant increase in the number of contributors. In addition, we have also invited contributions from perhaps our major stakeholder, the students, and are pleased to include a student contribution in this edition.

I have been privileged to act as Editor for the past two years but have decided to relinquish the post due to a change of role within the university. I would like to take this opportunity to express my thanks to the other individuals who make the publication of this journal possible, including those who volunteer as mentors to the authors, those who serve as reviewers and the members of the Editorial Board.

In closing I would like to wish my successor as Editor every success in taking the journal forward.

Mike Pogue  
Editor and Chair of  
Editorial Board

## Research Article

# Repositioning feedback: Incorporating video technology into a formative peer review process for group-based and individual student assessment

Steve McPeake, Mark McCrory, Heather Farley,  
Kenny McCartan and Ian Smyth

### Background – Engaging students in formative peer review

As higher education practices shift from primarily teaching to one of facilitating and supporting learning and engagement, so too do assessment and feedback practices continue to shift, to become increasingly formative, collaborative and engaging. The National Student Survey (NSS) (HEFCE, 2011) has contributed to an increased focus on the quality of feedback provided to students. Efforts made to address this, however, have not been without their challenges (Hounsell, 2007). Of particular concern is that the traditional locus of control for the process has largely remained with the educator, and yet an increase in the feedback provided by the educator does not necessarily equate to a corresponding increase in quality of the student learner experience, particularly if based on actions taken as a direct result of receiving this feedback.

Traditionally, the provision of feedback tended to reflect a didactic approach to teaching, with students given a written, largely summative assessment of their final work by their tutors. A more formative approach has since developed, where for example, students write assignments (or deliver other pieces of assessment) which are graded and returned to them with accompanying text which offers some formative insight into their awarded grade and ways in which they might improve. This paper outlines the experience of a Technology Facilitated Learning (TFL) project which aimed to incorporate a new means of peer review, using digital video recordings and online discussion tools, to better prepare students in two modules within the Ulster Business School (UBS) for their end-of-year assessed presentations and professional conversations respectively. This project built on an earlier TFL project, which investigated the potential

role and perceived effectiveness of audio feedback to students. In all of this work, the overarching aim was to develop (and disseminate) a broader portfolio of potential tools for tutors to avail of when planning assessments and the methods by which feedback is provided to students. In considering peer review, the concept should not be confused with peer assessment. Typically, peer review should engage students in an iterative process of feedback dialogue, rather than isolated feedback events (Nicol, 2010). Often, a peer assessment process involves students attributing weighted marks at the end of an activity, depending on perceived student contribution to the task in hand. Equally often, however, the risk in this process is that students will sit on the fence as regards feedback and duly award generous marks to their peers. Whilst peer assessment and review is to be commended at least for involving the students, arguably, the best examples have a greater and earlier emphasis placed on the process of peers actively constructing and delivering their own evaluative and professional judgements to others. This is in contrast to simply focussing on applying quantitative grading to an end 'product' and merely repeating the lecturers' comments (Cowan, 2012; Cartney, 2010).

This, in turn, has greater implications for the students by encouraging them to engage more closely in a process that will also help them to directly reflect on their own learning and on the professional skills and competencies required therein (Sadler, 2010). It is perhaps this self-awareness process that needs greater focus. As Ertmer et al. (2007) note, peer feedback can help students with their own externalisation, again building on their confidence and capability levels. Such aspirations are central to management education practices in the Ulster Business School, whether at undergraduate or Masters level.

Notwithstanding the extant criticisms, this project sought to expand the potential use and effectiveness of peer review by aligning the use of video technology as a feedback mechanism, with the design principles as highlighted by the PEER Toolkit project (Nicol, 2011) and with Ulster University's Principles of Assessment and Feedback. The use of video feedback within the learning environment is not new per se (see, for example, Roter et al., 2004; Falchikov, 2005), but this project sought to

embed its use much earlier in the process, in essence using it as part of the whole learning and assessment process, rather than as a method of assessment in itself. The project was undertaken by a small community of practice involving colleagues in the Department of Management and Leadership, TFL and ICT Customer Services (ICTCS). This paper shares the group's experience of rolling out the new assessment exercises in two modules, describing how the peer review process worked and considering its success or otherwise, based on evaluative feedback received from the student groups (who participated in end-of-term focus groups) and from the tutors involved. Consideration was given to similarities and differences in the case studies, particularly in regard to its application with group-based and individual assessments, and with undergraduate and postgraduate students.

## Method

The methodological design took the form of action research with a qualitative evaluation.

## Planned module activity

Two Semester 1 modules were selected from two courses which ran within the Department of Management and Leadership within the Ulster Business School. These were a level 4 Effective Communication module, which was delivered to first year, full-time BSc (Hons) Management and Leadership Development students (n=26) and a level 7 Human Resource Management module, which was delivered to part-time, postgraduate MSc Human Resource Management students (n=30). The aim was to test the approach with two very different groups of students and assessment types. Thus, whilst some aspects of the process were identical for both cases, other aspects had to be adapted, depending on the task in hand.

With both student groups, the aim was for ease of application and transferability for others, based on generally available teaching spaces and equipment. Thus, the project made use of mobile technologies such as smartphones and tablets which are readily available to students and tutors, and can easily capture students' practice assessments in class with minimal prior planning and/or pre-booking of equipment. These practice

sessions were then to be uploaded onto Blackboard Learn by the students, for other students to access and review accordingly. In small groups, each student would then review and critique each other's work, using defined criteria as outlined by the tutor. In this way, the technology would facilitate peer review of students' practice assessments with the intention that each student's dual experience as both presenter and assessor would be a beneficial one. Firstly, it gave them an early opportunity to experience the assessment in front of others and in turn, observe others' engagement with the assessment. Secondly, they could then reflect on

Module title	<b>BSc (Hons) Management &amp; Leadership Development: Effective Communication module</b>		<b>MSc Human Resource Management: People Resourcing module</b>	
Nature of Module	This module introduces students to the fundamentals of effective communication. It is designed to encourage students to understand and reflect upon how to be more effective communicators in the workplace and at university. It also encourages students to understand others, their perceptions and how this affects a successful outcome.		This module focuses not just on the practical aspects of recruitment, selection, employee retention and dismissal but also the strategic aspects to equip learners with the knowledge and understanding required for resourcing and talent management within a global context.	
Module Level	Level 4; full-time undergraduate		Level 7; part-time postgraduate and in employment	
Cohort Size	26		30	
Nature of Assessment	Students working in groups of 4 during the module and in the delivery of a final (10 minute) group presentation in week 12		Students working in groups of 3 during the module, but undertake an individual (15 minute) professional conversation with the module tutor in week 11/12, on a selected topic	
Assessment: Marks Allocated	Presentation weighting: 20% Contribution to the peer review process: 30%		Professional discussion weighting: 50%	
Facilitated work during the module	Week 2	1 <sup>st</sup> practice recording (any topic)	Week 2	Class discussion of assessment criteria
	Week 5	Class assessment exercise of 'Model Presentation'	Week 4	1 <sup>st</sup> practice recording (personal aspect)
	Week 7	2 <sup>nd</sup> practice recording of draft presentation followed by upload to Blackboard	Week 6	2 <sup>nd</sup> practice recording (professional aspect)



Week 8	View recordings and prepare feedback	Week 10	Review feedback and make final preparations for presentation
Week 9	Review Feedback and make final preparations for presentation		

Table 1: Key characteristics for each module group

what they saw and experienced in regard to better preparing themselves for their own end-of-module assessment and the criteria to be applied. The following table summarises the key characteristics for each group:

For the undergraduate students, the Effective Communication module sat alongside a Management Skills module, acting as one of the initial points for inducting students who are embarking on their chosen course and developing appropriate skills, such as sourcing material and referencing correctly, academic writing, working in teams and, in this case, delivering presentations. For the MSc HRM students, the module aimed to encourage students to develop a strategic approach to the attraction and retention of staff, a key part of which is the ability to demonstrate relevant professional and practical skills. The professional conversation was therefore an important vehicle for these experienced HR professionals to further develop and reflect on these skills.

In both cases, students recorded an initial presentation or discussion on a topic of their choice, at an early stage in the module. At this point, the topic itself was not as important as the chance to practice the respective assessment method for a given time, to encourage some subsequent personal reflection on, and review by others of, the actual delivery and to become familiar with using mobile technology to review and upload the material to Blackboard Learn. The undergraduate students completed an in-class activity in week 5 using a ‘model presentation’; similarly, there was an exemplar professional discussion prepared by the tutors, which contained deliberate mistakes as well as points of good practice shown to the MSc class. This facilitated positive discussion with the students on the key assessment requirements, but was also an important exercise

in easing the students into the process. Following this, the students had an opportunity to deliver, record and upload a draft of their assessment, which they refined, following the receipt of feedback from their peers. For the postgraduate group, there were a further two practice recordings, focusing on different aspects of their work. Feedback and review of these informed final preparations for the professional conversations, scheduled over the last two weeks of the Semester. In awarding marks, the undergraduate module awarded marks to the students for the quality of their engagement in the peer review process, whereas the postgraduate module did not. This offered an interesting comparison on whether students might place more emphasis on a process being attached to module marks before engaging with it (Brint et al., 2008).

Thus, students developed and refined their knowledge, skills and confidence throughout the module, through more active engagement with each other along the way, rather than just preparing (often at the last minute) for one presentation at the end. Certainly, for the undergraduate students, this provided a more structured and supportive environment with managed steps along the way – arguably more familiar to their school experience.

### Evaluation of the process

On completion of the modules, a qualitative evaluation was then carried out, informed by two focus groups (one from each cohort of students) as advocated by Morgan (1997) and Kleiber (1994). Qualitative focus groups were deemed the most appropriate in this instance, as they allowed for a thorough exploration of the concepts that emerged from the student's own experiences. A series of semi-structured questions was prepared (see Appendix 1), covering ease of use in regard to the technology and uploading activity and the role and perceived value of the peer review process, including the use of video recording and student feedback given and received. Each focus group was asked a similar set of semi-structured questions to allow comparisons to be made, notwithstanding some slight variations given the respective assessment requirements. Students were invited to participate in the focus groups on completion of their Semester 1 examinations and each discussion lasted approximately 45

minutes. Eight students attended the MLD focus group and 10 students attended the HRM focus group, with a mix of male and female students. The students chosen in each instance provided a representative sample of the module cohort in terms of gender, marks, age, etc. The focus groups were recorded, having received permission from the students with the assurance of anonymity. Responses were then categorised into key themes, as summarised below (Norton, 2009). Focus groups can suffer from limitations with regards to the facilitator's role; i.e., it is important for them to control the conversation yet without introducing their own bias in terms of questioning and body language. This was acknowledged and limited by the facilitators being adequately trained and aware of any potential issues that might arise (Berg, 2004).

## Findings

In reviewing the focus group discussions, it was interesting to note a number of similarities and differences between the two student groups. Main themes are considered below:

### The video recording process

Both groups were relatively unconcerned about the actual recording process, perhaps as a result of the 'informal' and unobtrusive way it was done, using smart phones and iPads which they were very familiar with. As one postgraduate HRM student noted: "I don't think you notice the camera – it would be different if you were going in and doing a presentation just in front of a camera, but the fact you were doing a discussion...all of a sudden after a few minutes you didn't notice it was there."

As perhaps might be expected, given their age and level of experience, seven of the eight undergraduate MLD students were initially more concerned and/or uncomfortable about presenting to their classmates, whereas the postgraduate students in employment felt this was easier as they had more experience of speaking in front of others. Conversely, the postgraduates were more concerned with the new format of assessment (professional conversation), which they had not previously encountered, although they were more comfortable with it once they

had become familiar with the requirements: “Prepares you better for the workplace rather than exams” ... “focussed your mind on a different way of assessment”.

As is often the case, all respondents reported a distinct dislike of watching and/or listening to themselves, although many acknowledged the significant benefits: “Watching the video back and hearing your own voice was so weird” (MLD student); “It was horrible watching yourself but it was very, very helpful” (HRM student).

In both cases, the student groups acknowledged the value of the sessions where they could assess pre-recorded videos showing common pitfalls in regard to the respective assessments. These provided the chance not only both to build confidence using a ‘safe’ scenario and identify areas for improvement, but also to rehearse the language of giving appropriate feedback to others: “... we weren’t going into the process ‘blind’ without any practice with the lecturer” (HRM student). Similarly, with the undergraduate MLD students, coverage of the assessment criteria early on in the module ensured that they were in fact thinking about how they were going to be marked from the beginning: “I didn’t realise the presentation, the colour and style of it really mattered, it was just what the person was saying”. Interestingly, the video recordings and playbacks seemed more valuable to the undergraduate MLD students in preparing for their presentations than it did for the HRM postgraduate students, who had more divided opinions on their use. These ranged from: “After the first one I thought it was a waste of time to do the videos”, to “I completely disagree, I felt redoing it was really beneficial because we only did 7 – 10 minutes the second time, and we thought ‘we’re going to push and see what it’s like doing the full time’”. The MSc HRM students appeared to value the feedback given by their peers more than the technology used to record it. This may be due to the nature of the respective assessments, in that the video recording of presentations was perhaps seen to be more directly relevant than for professional discussions. Nonetheless, a number of the respondents did recognise that the recordings helped them to see that they were indeed implementing suggestions from feedback: it “made you more aware of your mannerisms watching it back” and more

importantly, helped them to ascertain whether improvements had been made in subsequent recordings.

### The giving and receiving of feedback

It was encouraging to see how receptive both student groups were to receiving feedback within this exercise, although this may also have been a feature of thorough planning and a well-designed process. Therefore, it is essential that the module ground rules, along with tutor and student expectations, are very clear from the outset and the majority of issues or concerns raised resolved quickly. The students liked to know what was expected of them in regard to assessment and had no desire to be actively involved in generating their own assessment criteria. Our experience would suggest that students were particularly open to receiving formative feedback from peers, with the summative assessment and overall module oversight coming from the lecturer(s). Whilst some MLD students had expressed initial concerns about presenting to their peers, their fears seemed unfounded: “Nobody took offence at the feedback. It wasn’t bad feedback, it could only help”. Similarly, the MSc HRM students saw potential in learning from each other: “When something is pointed out by a lecturer they take it personally – ‘I’m going to fail’ – but when it came from others it was like ‘I do it too, so watch out for it’”. As an MLD student noted: “you may not notice something yourself until someone points it out”. Some postgraduate students recognised that their maturity may assist in this process: “At Masters everyone is mature enough to give appropriate feedback which is constructive”. Students in both groups did make the connection that they were learning through evaluating others’ performances and giving feedback accordingly: “It made you think about how you did things yourself” (MLD student) and, interestingly, through benchmarking themselves against the best in class: “if someone did something well, you could do it too”.

An unforeseen benefit was the way in which students engaged in giving feedback within the class. The intention had been that, after the presentations, student groups would go away, upload their presentations onto Blackboard and then review and write feedback for their peers. This did happen in some cases, as originally planned. In practice however,

students engaged in meaningful discussions after each presentation and replayed the recordings made there and then, which meant that more immediate feedback was shared within this forum. Students liked this and commented that the ‘real time’ reporting was very useful. In fact this became even more important as problems with the uploading process began to emerge. Some even felt that “watching the recordings again was a waste of time” although the value of watching themselves at least once has already been noted.

It would appear that such an exercise can be beneficial, particularly in a first year module, when the focus is on developing skills, self-reflection, and an ability to progress through the course. Sometimes, tutors may feel that practice presentations are repetitive or over-kill for students. However, if placed appropriately, they can allow students to practise a range of important skills within their cohort and be better prepared in advance of their own assessment.

### How the exercise was structured

Student comments on their respective module experiences suggest that much of our module planning was effective. In particular, video recording practice presentations were seen as an important way of overcoming nerves; of becoming more familiar with talking for a given period of time (for example the first practice presentation was often much shorter than students realised) and of improving particular skills and/or correcting identified aspects, in advance of the ‘real thing’: “It made you think about how you did things yourself” (MLD student); “Seeing how the group got better was helpful as weeks went on” (HRM student). For the undergraduate first year group, in particular, it was noted that the incremental structure helped them with their time management, whereby they had to prepare more in advance and could not leave things to the last minute. Whilst there were still a few problems with one or two students in groups (the usual issues associated with dysfunctional group work, (for example, peers do not deliver work on time and/or fail to appear for scheduled meetings), these were dealt with, and the other students could still benefit from engaging in the process – a useful tool to have in Semester 1 of first year.

## The technology

Finally, the technology itself merited some consideration in facilitating the process. Whilst the use of smart phones/tablets in class worked very well, producing good quality recordings in a user-friendly way, the biggest issue reported was in relation to uploading these video recordings onto Blackboard Learn. This caused much frustration, described as a “nuisance” and a “nightmare” by two respondents. Some compatibility problems between Android and Apple devices were reported, but only by the MLD student group. As noted above, the fact that the HRM students replayed the recordings and discussed and gave feedback in ‘real time’, helped to circumvent the technology problems in this exercise. One HRM respondent noted: “Technology issues didn’t detract because the feedback was so useful”. It is, however, something that needs consideration when planning future technology-facilitated exercises.

## Conclusion

In conclusion, all respondents felt that they were better prepared for their own end-of-module assessments as a result of giving and receiving feedback. In particular, the gain in self-confidence was evident, with students noticing a big difference from weeks 2 to 12 and in feeling more prepared. The incorporation of practice activities (including student presentations and ‘model’ presentations) in regard to assessment and feedback from a very early stage in the module was highly beneficial, particularly for students who typically do not engage with their assessment criteria/requirements until the last minute. An additional advantage reported by both the undergraduate and postgraduate students was that of team building: “You bond with your group more – you want each other to do well” (MLD student); “I liked how it was ‘our wee group’ and we could see progress together” (HRM student). Such a collegial approach, if built on further, can only help in future modules.

In relation to the use of video in this project, the technology can add significant benefits to peer review, although its value is dependent to some degree on the nature of the assessment and in the supporting infrastructure (i.e., the technology available and network capacity for uploading videos), which can make or break student (and lecturer) buy-in

to the process. The use of smart phones/video recording in class can be helpful for both lecturers and students alike, and easily facilitated. Similarly, the quality is more than adequate for these purposes and can allow students to review the presentations in small groups in order to prepare feedback. Simple playback in-class and reflection in 'real time' is something we would consider incorporating in the future, rather than relying on students and Blackboard technology to upload and revisit the recordings at a later date. Certainly, video technology can, as with audio feedback, play a useful role as part of varied and stimulating assessment strategy within any course – the challenge is, however, to continue to encourage students to make connections between modules and transfer their learning accordingly. Lecturers need to continue to embrace a range of methods, and the effective integration of technology-facilitated activities, such as peer review of recorded presentations, has an increasingly important role to play in engaging with students within a changing learning landscape. As Boud et al. (2001, p.2) note, “peer learning is a necessary and important aspect of all courses ... without it students gain an impoverished education”.

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## Appendix 1 -

### Peer Review Focus Group Question Schedule

General introduction to the focus group (confidentiality, etc.) and reminder of the peer review process.

#### General Questions

- What was your view of the assessment when it was introduced at the start of the semester?
  - Being videoed?
  - Giving and receiving feedback to/from your classmates?
- Now that you've gone through the peer review process, what did you like about it?
- What did you not like about the process?
- Do you feel it was appropriate that you were asked to give feedback to your classmates?

#### Criteria

- (Steve only) – What are your reflections on the initial session in which we developed the assessment criteria together?
- (Mark only) – Had you looked at the assessment criteria for the presentation before the marking exercise in week 5?
  - (For those who had) – Did you understand the criteria?
- Do you feel the marking exercise using the video helped you understand the criteria better?
  - In what ways?
- Do you feel the peer review process (giving and receiving feedback on your draft assessments) helped you understand the criteria better?
  - In what ways?

#### Process

- Did you feel able to give feedback to your classmates?
  - If not, what was stopping you?
- Could the lecturer have done anything else to help you give feedback to your classmates?
- (Steve only) – When you were making the recordings, did you find you gave or received any feedback from your classmates?

- Outside of the ‘formal mechanisms’ for giving and receiving feedback, did you find that you discussed your own or others work e.g. during coffee breaks?

### Technology

- How did you find the technology aspect of the project:
  - Making the recordings?
  - Uploading them to Blackboard?
  - Accessing others’ videos?
    - (If negative) – Did this detract from the experience?
    - How could it be made better for future users?

### Outcomes

- Do you think the peer review process helped you prepare for your assessment at the end of the module?
- Do you think the process helped you address any nerves you had about the assessment?
  - If so, in what ways?
- Concentrating on the process of giving feedback, did giving feedback change your own approach to the assessment in any way?
  - If so, could you give me any examples?
- Concentrating on the feedback you received from your classmates:
  - Could you understand the feedback you received?
  - Do you feel the feedback you received was useful?
  - Have you any examples of how you changed your work based on the feedback you received?
- Did you receive any feedback you disagreed with?
- Did you feel you had to act upon feedback you disagreed with or did you feel able to ‘reject’ it?
- How would you compare this type of assessment to that you have experienced in other modules?
- Did you find the process motivating?

### Closing Questions

- Thinking back through the process and everything we have discussed, what to you is the key thought or reflection you have on peer review?

- How would you compare this type of assessment to that in other modules?

Steve has been with the department since 2007, initially as a PhD researcher/part time lecturer before becoming a full time lecturer in 2010; prior to this he worked in industry for approx. twenty years. Steve's research focuses on organisational perspectives on equality and diversity particularly in relation to the employment of migrant workers from the A8 countries. He has presented much of his research at conferences around Europe over the last number of years and has recently designed new modules on equality and diversity for undergraduate and postgraduate courses. He is also the Department's assessment and feedback champion and has attended/presented at various HEA events on the topic over the last two years. This has resulted in him piloting a number of innovative assessment and feedback practices with undergraduate and postgraduate students within the Ulster Business School, these include the use of audio and video technology.

Mark joined the Ulster Business School in 2010. He is the Course Director for the full-time MBA. and is working towards a PhD focusing on the transfer of learning from management education. Prior to joining the University, Mark worked as a Senior Consultant for ITS Ltd (International Training Services) delivering management education and organisational development consultancy services to clients across the UK and Europe. Prior to this, he worked in learning and development and human resource management within the NI health service. Mark is a chartered psychologist and chartered member of the CIPD.

Heather joined the University in 1992, having previously worked in the food industry. She has taught primarily in the areas of Strategic Management and Marketing and is currently Head of the Department of Management and Leadership, in the Ulster Business School, based in Jordanstown. She is a Senior Fellow of the Higher Education Academy.

Kenny is Project Coordinator (Technology Adoption) within ICT Customer Services, Ulster University. Dr. McCartan is a Fellow of the University's Centre for Higher Education Practice and has responsibility for working with academic staff to identify and implement innovative technological solutions to enhance the teaching and learning experience for both staff and students at the University.

Ian joined the university in 2009 as a research assistant before commencing his PhD full time in 2012. His research focuses on the influence of social capital upon family firm succession dynamics. He works as a part-time lecturer within the department of Management & Leadership specializing in the field of human resource management. Ian is a member of the Chartered Institute of Personnel and Development.

## Research Article

# Evaluation of an inter-professional learning session for optometry and pharmacy students

Julie McClelland, Iain Jack and Susan Fetherston

## Introduction

The World Health Organisation's definition of Inter-professional learning (IPL) is "Inter-professional education occurs when students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes" (WHO 2010). IPL is employed so that efficacious healthcare will be delivered by a multi-disciplinary team that have an awareness of their role and are performing it well (Kelly and Aston 2011). However, a Lancet Commission (Frenk et al., 2010) investigating health education stated that education of professionals had not adapted with the changes of modern healthcare leading to graduates unable to face the contemporary needs of the population and stipulated the cause of this to be "fragmented, outdated, and static curricula" (Frenk et al., 2010).

Education for health care professionals has in the past been done in what is described as a 'shared' environment (Parsell and Bligh, 1999). This concept gave way to IPL, which is not only learning alongside other disciplines but learning from them. This could be the first stage in an attempt to make professional education fit for the 21st century (Frenk et al., 2010).

Although the concept of IPL appears beneficial, it may be difficult to incorporate in practice. Well known barriers to IPL include timetabling issues, professional body restrictions, a lack of respect or knowledge of other professions, writing learning outcomes that traverse professions (Curran et al., 2007; Mackenzie et al., 2007; Thistlethwaite et al., 2010). Parsell and Bligh (1999) investigated the 'readiness' of different professional groups to work together and embrace the concept of IPL. They suggested that it was important to measure how effective IPL was to each of the professional groups to ensure that the IPL exercises employed are valuable.

This is an area of study where there is little current research with regards to Pharmacy and Optometry. A recent MEDLINE search using the terms 'inter-professional' AND 'pharm\*' and 'optom\*' yielded no results. This was amended slightly and the hyphen removed to give search terms 'interprofessional', 'pharm\*' and 'optom\*' and three results were manifest, none of which were apposite.

Students themselves have intimated that they can benefit from IPL. A study from the United States found that 90% of Pharmacy and Nursing students agreed that there was learning potential from other professions, and 80% believed this should be embedded in the course (Henderson et al., 2013). The main benefits of IPL in healthcare training are illustrated by Barwell et al. (2013). They suggest that IPL training at undergraduate level results in better working relationships, improved teamwork between professionals, increased student understanding of the importance of interpersonal skills and improved communication between the professions, all of which ultimately all lead to an improvement in patient care.

The MPharm syllabus must align with the General Pharmaceutical Council's (GPhC) 'Standards for Initial Education and Training for Pharmacists'. The GPhC, which is not only the regulatory body for pharmacists in Great Britain, also accredits university MPharm courses. Any institution that would seek to deviate from the standards would not gain accreditation for their programme from the regulator (GPhC 2013). Although the GPhC is de facto guarantor of the curriculum, it does not dictate the content of individual modules, which allows for a degree of institutional flexibility in the areas the student should study. However, Criterion 5.6 in "Standards for Initial Education and Training for Pharmacists" states:

"The MPharm degree curriculum must include practical experience of working with....other healthcare professionals... Schools should articulate their strategy for meeting this criterion, which may include.....other healthcare professionals in-class" (GPhC, 2011).

Similarly, the General Optical Council (GOC) outlines the curricula for



undergraduate Optometry programmes in the UK and accredits training programmes. Although the GOC does not specify that IPL should be an integral part of undergraduate learning, it is stated that as part of the curriculum, undergraduate optometrists should 'be able to communicate effectively with professional colleagues, understand their role within a multidisciplinary team and show an appropriate professional attitude towards patients and colleagues'. A recent GOC visit to the Optometry Course at Ulster University to ensure ongoing accreditation highlighted the IPL embedded in the course as an area of good practice.

A recent shift in health care attitudes has changed the focus from clinical specialists working in separate environments to patient centred care (Barwell et al., 2013). The model of IPL training may contribute towards that goal. Although it is accepted that IPL is an important component of healthcare training, little data exist examining its utility. The present study aimed to evaluate the potential benefits of interprofessional teaching and learning for undergraduate Optometry and Pharmacy students. Specifically, it aimed to examine whether students felt that they benefited from knowledge from the other professional group and whether this exercise promoted better working relationships between the professions.

## Methods

Final year undergraduate Optometry students (n = 27) and Pharmacy students (n = 23) were invited to participate in an assessment of their perception of an inter-professional learning and teaching session. This session, facilitated by a qualified optometrist and a qualified pharmacist, was a compulsory part of the respective modules. The purpose of the study was to provide the researchers/lecturers with data to inform future teaching provision.

The study was discussed in advance with potential participants at the end of one of their lectures in modules OPT508 (Optometry students) and PHA703 (Pharmacy students). Students were informed that if they wished to participate they would be asked to complete a questionnaire before and after an inter-professional teaching and learning session

(part of both OPT508 and PHA703 modules). It was also indicated that while the IPL learning and teaching session was a compulsory part of the module, the questionnaire was not, and therefore, the students were not required to complete it. They were advised that completion of the questionnaire would not be advantageous or disadvantageous for their module, but that it could provide useful information that the researchers might publish or use to improve future teaching. As potential participants, all students were given an information sheet about the study with contact details should there be any questions/concerns.

At the start of the session, students were randomly allocated to a group of four: each group comprised two students from each professional group. Each group was provided with four different case studies for discussion. Each case study was based on a patient with an ocular condition attending an optometrist. A summary of the patient examination was provided, including details of each patient's current medication (Figure 1). The objective of the exercise was to discuss the patient case scenarios and decide on a management plan for each patient, which included the type of medication to be prescribed.

Jane Bell (age 18 years) attends her Optometrist complaining of itchy uncomfortable eyes. Slit lamp examination reveals binocular large tarsal conjunctival papillae (grade 3) and bulbar redness. The anterior chamber is quiet and healthy. She has previously had similar problems last spring which resolved after several weeks. She is concerned that this will affect her A-level examinations. All other findings are normal (RE +0.25DS, LE +0.25DS, Ophthalmoscopy: all healthy and normal). When taking a patient medication history, you note that the only medication that she takes regularly is amitriptyline 50mg every night for "recurrent sore heads that make me feel sick."

#### Questions:

What is your diagnosis?

How would you manage this condition?

How can she obtain this medication?

Are there any side effects or interactions that her Optometrist or Pharmacist should advise on?

Figure 1. Case study example

The scenarios were designed to facilitate a two-way exchange of clinical information. This was to allow Optometry students to inform Pharmacy students regarding the ocular conditions. Pharmacy students were then able to provide information to Optometry students on relevant interactions, indications and contra-indications of the patient's current and potential medications. Following a thirty-minute group discussion session, with interaction from both qualified professionals, a summing-up session was conducted to ensure the students had a full and comprehensive management plan for each case scenario.

### Questionnaire

Before group discussions commenced, both groups of students were invited to complete a questionnaire investigating their knowledge of and previous level of contact with the other professional group. The questionnaire comprised 9 questions and used a 5-point Likert scale to grade responses (1=strongly agree, 2=agree, 3=neither agree nor disagree, 4=disagree, 5=strongly disagree) (Figure 2). The questions were based on previously published analyses of IPL (Parcell and Bligh 1999; Curran et al., 2007). In order to ensure maximum participation in the study, the authors selected only a small number of questions that they felt were most relevant to undergraduate optometrists and pharmacists. It was considered that the short nature of this survey would encourage participation. Aims were to examine areas that academic staff from both professions felt were essential, and to inform future working relationships in areas such as professional limitations, communication between professional groups and team working skills. Following completion of the teaching session, the questionnaire was reissued to students.

### Statistical Analyses

Data was entered into an SPSS spreadsheet. Mean scores were calculated for each question and descriptive statistics used to summarise data. Due to the small participant numbers, non-parametric analyses were applied (Mann-Whitney U) to determine whether there were any differences in questions scores before and after the IPL session. Power calculations were not used to inform the sample size, as this research was designed as a pilot study to inform both teaching provision and a larger pedagogical study.

1. Learning with other students/professionals will make me a more effective member of a health care team.  
Strongly agree   agree   neither agree nor disagree   disagree   strongly disagree
2. Patients would ultimately benefit if health care students/professionals worked together.  
Strongly agree   agree   neither agree nor disagree   disagree   strongly disagree
3. Shared learning with other health care students/professionals will increase my ability to understand clinical problems.  
Strongly agree   agree   neither agree nor disagree   disagree   strongly disagree
4. Communications skills should be learned with other health care students/professionals.  
Strongly agree   agree   neither agree nor disagree   disagree   strongly disagree
5. Team - working skills are vital for all health care students/professionals to learn.  
Strongly agree   agree   neither agree nor disagree   disagree   strongly disagree
6. Shared learning will help me to understand my own professional limitations.  
Strongly agree   agree   neither agree nor disagree   disagree   strongly disagree
7. Learning between health care students before qualification and for professionals after qualification would improve working relationships after qualification / collaborative practice.  
Strongly agree   agree   neither agree nor disagree   disagree   strongly disagree
8. Shared learning will help me think positively about other health care professionals.  
Strongly agree   agree   neither agree nor disagree   disagree   strongly disagree
9. For small - group learning to work, students / professionals need to respect and trust each other.  
Strongly agree   agree   neither agree nor disagree   disagree   strongly disagree

Figure 2. Inter-professional learning questionnaire.

## Ethical approval

Before commencement of the study, the Chair of the Biomedical Sciences Ethics Filter Committee confirmed that this study was classified as a teaching evaluation and, therefore, formal ethical approval was not required. All data was collected anonymously.

## Results

A total of 29 students completed the initial questionnaire (Optometry students  $n=16$ , Pharmacy students  $n=12$ , not assigned  $n=1$ ) and 46 students completed the follow-up questionnaire (Optometry students  $n=20$ , Pharmacy students  $n=17$ , not assigned  $n=9$ ). Responses from each question were assigned a score from 1-5 (where 1=strongly agreed and 5=strongly disagreed). Scores from each question were entered into SPSS (Statistics 21) and results analysed. Due to the small number of respondents, non-parametric analyses were applied (Mann-Whitney U). Considering both cohorts together, analyses demonstrated a significant difference in mean question scores for all questions before and after the IPL session ( $p<0.05$ ) (Figure 3). A reduced question score indicated a stronger agreement with the statement.

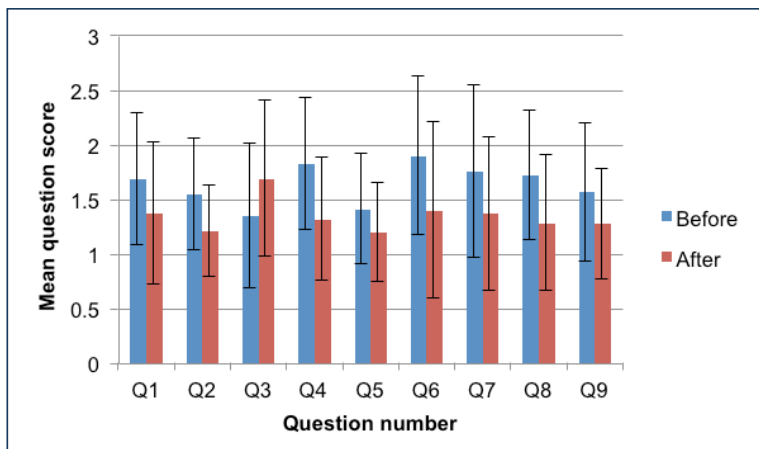


Figure 3. Mean question score ( $\pm$ SD) for each question before and after IPL session for all students together.

When data obtained from Optometry students was considered separately, results demonstrated a significantly improved question score in three areas: communication, professional limitations and positive attitudes towards other health care professions (questions 4, 6 and 8) ( $p<0.05$ )

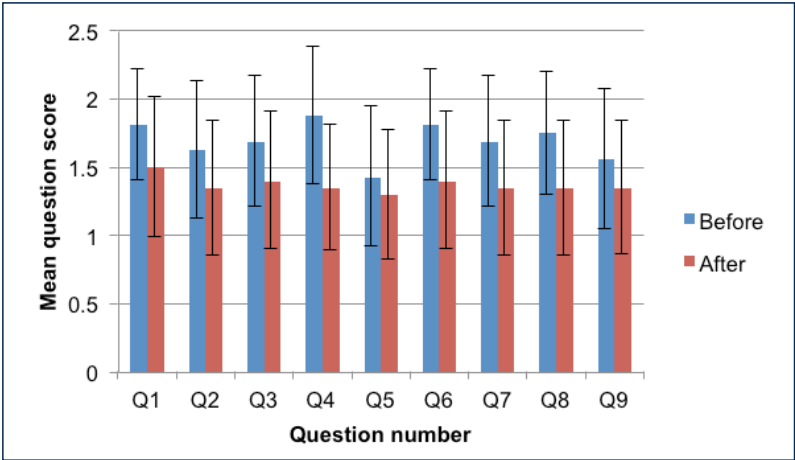


Figure 4. Mean question score ( $\pm$ SD) for each question before and after IPL session for Optometry students only.

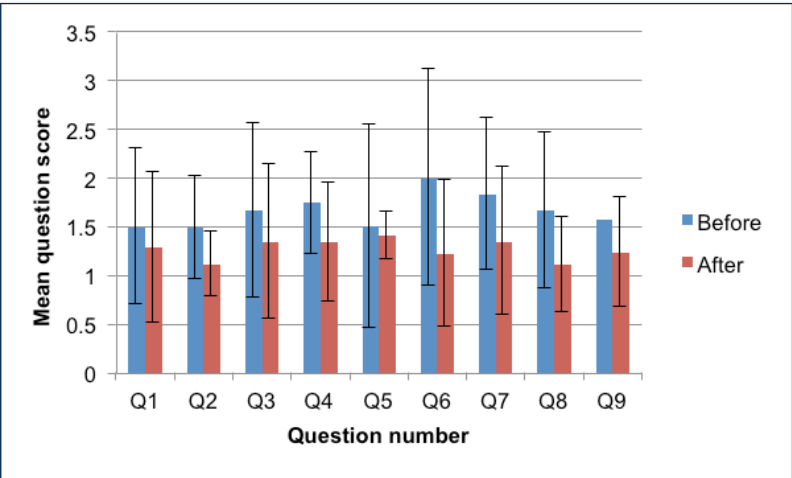


Figure 5. Mean question score ( $\pm$ SD) for each question before and after IPL session for Pharmacy students only.

(Figure 4). There were no statistically significant differences noted for the other questions.

When data from Pharmacy students was considered separately, results demonstrated a significantly improved question score in only one question relating to professional limitations (question 6) ( $p < 0.05$ ) (Figure 5).

## Discussion

This teaching evaluation has provided an insight into the perceptions of IPL for Optometry and Pharmacy students. The authors are unaware of any other published research in this area. Similar to other previous work on IPL, both groups of students perceived a significant benefit in the IPL sessions, recognising the advantages of learning together (Curran et al., 2007; Mackenzie et al., 2007). Although Curran et al. (2007) examined attitudes of Faculty members, similar themes to the present study emerged, including improved perceptions of team working, communication and problem solving when IPL education is employed. Although this study included a small number of participants, the authors intend to continue to develop this area of teaching and further embed IPL in teaching where appropriate. Extending this aspect of the undergraduate teaching and learning to future years will allow the academic staff to further refine and enhance the IPL sessions. Inviting feedback from the students to inform future course direction in the form of a questionnaire allows the students to be fully involved in teaching developments. Allowing students to act as co-creators of the learning environment facilitates a positive approach to obtaining knowledge and developing skills (Philips et al., 2010).

In general the Pharmacy students demonstrated a more positive attitude to IPL than the Optometry students. This may be attributed to the fact that Pharmacy students experience more IPL than Optometry students during their undergraduate course. Diverse attitudes towards IPL are common in Health Care. Curran et al. (2007) examined Faculty members' attitudes towards IPL and demonstrated more positive perceptions of IPL from nursing than medical members and from female than male staff.

Optometrists and pharmacists provide first line health care to the public, and there are many areas where professional interests may overlap at both undergraduate and post-graduate level. By providing an opportunity for professionals to be educated together, this allows the development of good working relationships between professionals and respect for each other's knowledge, limitations and professional scope of practice.

Hammick (1998) suggests that in order to put the theory of IPL into practice in undergraduate environments, there are certain factors that must be considered. These include flexibility within the timetable to suit all professional groups, including the students in the discussion relating to the future direction of their learning and providing time for reflection on the IPL. Reflection incorporated in to the teaching will allow the students to fully appreciate the new knowledge and understanding they have gained from working with the other professions and to consider how they may use this in their future work. In addition to questionnaire data collected in the present study, module evaluations also highlighted that the IPL session was a positive aspect to the teaching and learning experienced by the students.

### Limitations

Due to anonymous nature of the questionnaire it was not possible to draw definite conclusions regarding how individual scores changed before and after the session. The results highlighted that the group means changed and reflected a positive shift in attitudes to the other profession. It would be useful in future to link the pre and post questionnaire scores from individuals to examine data prospectively. Disappointingly, fewer students than took part in the initial study completed the post-IPL questionnaire, although this study was only originally intended as a small exercise to investigate the use of this type of teaching in undergraduate Optometry and Pharmacy. The authors feel that these preliminary results would be interesting to investigate further in a larger sample and perhaps at differing academic levels.

This study at undergraduate level suggests that there may be benefits in IPL training in these specific professional groups. Lindqvist et al. (2005)



presented positive outcomes from a similar style of a case-based learning approach for pre-registration students. Pharmacy and Optometry students follow similar training pathways where a pre-registration year follows undergraduate training. It would be useful investigate the benefits of IPL at postgraduate level education.

## Conclusion

Facilitating active learning environments with other professional groups allows students to engage fully in the learning environment and to reflect on working together in multidisciplinary situations, preparing the students for their role as healthcare providers. This study demonstrates the benefits of IPL in a small sample of students from a Health Care background. There are many disciplines in the University where similar approaches may foster long term respect and understanding between the professions, which would achieve one of Ulster University's main aims to promote life-long learning.

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Dr Julie McClelland, a qualified Optometrist and active member of the Biomedical Sciences Research Institute is involved with both undergraduate and post-graduate Optometry teaching.

Mr Iain Jack is a qualified pharmacist, lectures in Clinical Pharmacy & Pharmacy practice and is a member of Centre for Higher Education Research Practice.

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## Research Article

### Year 2 contribution to degree classification: An empirical case study

Peter Green, Mike Pogue, Gillian Armstrong, Gregory McGrath  
and Abigail Wilson

#### Introduction

Ask any student whether degree classification matters and the inevitable response will be ‘yes’ (see Green et al. 2013, p59). High Fliers (2012, p9) suggest that more than two-thirds of the recruiters for the UK’s leading employers require a 2.1 degree classification. More recently High Fliers (2014b, p8) report that 70% of employers insist on a 2.1. Green et al. (2013) provide empirical evidence from a study of students within the Ulster Business School which suggests that degree classification, total tariff points on degree entry and the completion of a work placement year are statistically significant in predicting whether a student will secure graduate level employment within six months of graduation. University league tables, such as The Complete University Guide (<http://www.the-completeuniversityguide.co.uk/league-tables/rankings?o=Research&v=wide>) also employ data on the attainment of ‘good degrees’ (the percentage of first and upper second class honours relative to the total of classified degrees awarded) in ranking UK universities. According to this league table, Ulster University is ranked 68<sup>th</sup> out of the 123 universities included in the 2015 table (criterion of good degrees awarded), with 65.3% of graduates achieving a good degree. In comparison, the 2008 table ranked Ulster 41<sup>st</sup> out of 113 universities with 61.8% of graduates being awarded a good degree. Although the percentage of good degrees awarded by Ulster has increased, the UK ranking has declined.

The current progression weighting within the algorithm for degree classification adopted by Ulster University is the average mark achieved in level 6 modules only (although there are exceptions), i.e., 100 per cent in final year. This is based upon the premise of “exit velocity”, whereby students demonstrate higher order learning outcomes in their final year, and for some after the completion of a placement (or study abroad) year.

However, the application of final year results alone is not a universally accepted framework for the determination of degree classification. The Student Assessment and Classification Working Group (SACWG) found that up to 15% of honours classifications in UK higher education might be different if the results had been fed through another institution's award algorithm (Woolf and Turner, 1997).

In 2009, as a pilot study the University agreed (with student consent) to permit the second year (level 5) of the BSc degree in Accounting to contribute (25 percentage points) towards the final year classification. Pogue et al. (2012) report the initial findings of this pilot, which suggest that a second year contribution does result in both a statistically significant improvement in the average (mean, median and mode) second year marks and final year marks, with both falling within the boundary for a 2.1 classification. These results were considered by the University Teaching and Learning Committee in December 2011. The indication was that whilst the results appeared convincing, they were not conclusive and therefore the pilot should continue for a further two years. This paper presents the findings from the final report to the University Teaching and Learning Committee considered in October 2013 and discusses the conclusion from this committee that a second year contribution should not continue to be applied to the BSc Accounting degree.

### Data, analysis and results

The evidence presented is based upon data for three cohorts where the second year average mark contributed to final degree classification and two cohorts where the second year mark did not. Student marks are included on the basis of first attempts, in first, second and final year. Those students with entry qualifications other than tariff points (such as APEL) are excluded from some of the analysis performed. Students with extenuating circumstances on the first attempt in assessments are also excluded.

Despite the fact that the final year (level 6) performance is the primary issue of interest within the context of the introduction of a different classification framework from the existing one, both total tariff points

on entry and first year performance may also provide an indication of general academic ability and the impact of a level 5 contribution to level 5 performance, which may subsequently impact upon degree classification. In addition, both Green et al. (2010) and Pogue et al. (2012), report on the impact of absenteeism upon student performance. Absenteeism is defined as the percentage of time tabled classes (lectures and seminars) missed in both semester 1 and 2. Attendance data for both lectures and seminars was collected using the electronic Turning Point system for lectures and manual recording for seminars.

Table 1 provides the descriptive statistics with regard to the sample investigated in this study. Note the statistics for those students with a level 5 contribution to final classification are highlighted in bold.

Table 1: Descriptive statistics for students on the  
BSc Accounting degree (2009 – 2013)

#### Total tariff points on entry

	2009	2010	2011	2012	2013	Total
Mean	344	330	<b>335</b>	<b>323</b>	<b>326</b>	333
Median	340	330	<b>320</b>	<b>320</b>	<b>320</b>	330
Mode	340	300*	<b>320</b>	<b>280</b>	<b>280</b>	320
Std Dev	39.73	44.79	<b>42.10</b>	<b>53.24</b>	<b>52.48</b>	46.28
First Quartile	320	300	<b>310</b>	<b>290</b>	<b>280</b>	300
Third Quartile	370	350	<b>360</b>	<b>360</b>	<b>360</b>	360
Number	100	65	<b>77</b>	<b>83</b>	<b>35</b>	360

Kruskal Wallis test on the mean indicates significant differences between cohorts (Chi-square 11.941,  $p=0.02$ ). On the median no significant difference is observed (Chi-square 8.604,  $p=0.072$ )

\*Multiple modes exist, the lowest is reported.

## First year degree mark

	2009	2010	2011	2012	2013	Total
Mean	61.47	61.91	<b>64.49</b>	<b>62.21</b>	<b>64.89</b>	62.74
Median	61.00	62.50	<b>64.00</b>	<b>63.00</b>	<b>66.00</b>	63.00
Mode	61.00	60.00	<b>58.00*</b>	<b>63.00</b>	<b>64.00</b>	64.00
Std Dev	9.48	9.51	<b>8.90</b>	<b>10.35</b>	<b>9.26</b>	9.58
First Quartile	55	56	<b>58</b>	<b>53</b>	<b>57</b>	56
Third Quartile	68	69	<b>72</b>	<b>70</b>	<b>72</b>	69
Number	95	70	<b>83</b>	<b>85</b>	<b>35</b>	363

Kruskal Wallis test on the mean and median indicates no significant differences between cohorts (Mean Chi-square 6.542,  $p=0.162$ , Median Chi-square 9.141,  $p=0.058$ )

## Second year degree mark

	2009	2010	2011	2012	2013	Total
Mean	54.28	57.78	<b>62.74</b>	<b>60.22</b>	<b>64.32</b>	59.17
Median	54.00	58.00	<b>63.00</b>	<b>62.00</b>	<b>63.00</b>	60.00
Mode	55.00	58.00	<b>60.00</b>	<b>55.00*</b>	<b>63.00</b>	55.00
Std Dev	10.73	10.71	<b>9.15</b>	<b>12.81</b>	<b>8.82</b>	11.24
First Quartile	48	50	<b>55.75</b>	<b>53.00</b>	<b>59.00</b>	52.00
Third Quartile	62	65	<b>70.00</b>	<b>70.00</b>	<b>71.00</b>	68.00
Number	106	77	<b>82</b>	<b>85</b>	<b>47</b>	397

Kruskal Wallis test on the mean and median indicates significant difference between cohorts (Mean Chi-square 43.089,  $p=0.000$  and Median Chi-square 38.230,  $p=0.000$ )

\*Multiple modes exist, the lowest is reported.



## Second year absenteeism

	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>Total</b>
Mean	20.84	17.11	<b>18.23</b>	<b>26.62</b>	<b>22.68</b>	21.67
Median	20.00	17.00	<b>17.00</b>	<b>24.03</b>	<b>19.57</b>	19.70
Mode	4.00	1.00	<b>1.00</b>	<b>2.00</b>	<b>4.00</b>	4.00
Std Dev	13.70	11.97	<b>12.85</b>	<b>16.63</b>	<b>16.17</b>	14.58
First Quartile	8.00	6.50	<b>8.25</b>	<b>12.89</b>	<b>9.24</b>	9.00
Third Quartile	31.00	26.75	<b>25.00</b>	<b>39.30</b>	<b>34.22</b>	31.00
Number	111	80	<b>100</b>	<b>99</b>	<b>48</b>	438

Kruskal Wallis test on the mean and median indicates significant difference between cohorts (Mean Chi-square 19.933,  $p=0.001$ , Median Chi-square 13.305,  $p=0.010$ ).

## Final year marks contributing to classification award

	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>Total</b>
Mean	56.45	57.42	<b>60.89</b>	<b>59.25</b>	<b>61.26</b>	59.01
Median	55.00	57.00	<b>62.00</b>	<b>60.00</b>	<b>61.50</b>	60.00
Mode	51.00*	57.00*	<b>60.00</b>	<b>52.00*</b>	<b>60.00</b>	60.00
Std Dev	7.17	10.390	<b>10.37</b>	<b>9.09</b>	<b>8.67</b>	9.44
First Quartile	52.00	52.25	<b>56.00</b>	<b>53.00</b>	<b>56.50</b>	54.00
Third Quartile	63.00	63.00	<b>67.00</b>	<b>65.00</b>	<b>68.00</b>	65.00
Number	51	60	<b>63</b>	<b>59</b>	<b>42</b>	275

Kruskal Wallis test indicates on the mean and median significant difference between cohorts (Mean Chi-square 19.812,  $p=0.001$ , Median Chi-square 13.305,  $p=0.010$ )

\*Multiple modes exist, the lowest is reported.

Upon review of table 1 there are statistically significant differences between final year (level 6) marks across all cohorts, with improvements in the average mark observed across all quartiles in respect of a second year contribution (highlighted) This is also apparent with regard to average level second year (level 5) marks. To investigate further, a dummy variable (SC) is created which takes the value 1 if the second year degree performance contributes towards final classification for the cohort, and 0 if it does not. Both parametric and non-parametric tests are employed to investigate whether a second year contribution results in higher average marks at level 5. The results are reported in table 2.

Table 2: Comparison between average degree marks achieved in year 2 (AV2) where the second year mark contributed to final year classification (SC=1) and where it did not (SC=0)

Group Statistics

SC		N	Mean	Std. Deviation	Std. Error Mean
AV2	0	183	55.75	10.829	0.800
	1	214	62.09	10.768	0.736

t-test on equality of means     t = -5.828\*     p = 0.000\*\*

Mann-Whitney Z                Z = -5.950                p = 0.000\*\*

Number of observations is 397

\* Levene's test on the equality of variance indicates that the variance of the two groups is equal, therefore t-tests on the equality of the means for the two groups is based upon the equality of variance. \* Significant at the 5% level using a two-tailed t-test. \*\* Significant at the 1% level using a two-tailed t-test.

Table 2 reveals that the average second year mark for those cohorts for which a 25% contribution applied is higher, the difference is statistically significant, and represents an increase in degree classification, albeit at level 5. Whilst convincing, this result alone does not provide definitive proof that it is the second year contribution which is driving the observed improved performance. For example, the analysis thus far has also

demonstrated that there are statistically significant difference between cohorts with regard to tariff points on entry and absenteeism. In order to address this issue a multivariate model to explain second year (level 5) performance is explored. Specifically, the following model is investigated using ordinary least squares (OLS) regression:

$$Y = \beta_0 + \beta_1 TT + \beta_2 AV1 + \beta_3 ABS + \beta_4 SC + \mu$$

where Y is the average marked achieved in year 2 (AV2);  $\beta_0$  is a constant term introduced as a rather ad hoc way of capturing the impact of omitted variables; TT is the total tariff points on degree entry; AV1 is the average mark achieved in year 1 modules; ABS is the percentage absent from all time tabled classes in year 2; SC is a dummy variable which takes the value 1 if the second year contributes towards the final year classification, 0, if it does not, and  $\mu$  is a stochastic error term.

This model essentially attempts to control for the impact of other factors upon the relationship between second year (level 5) performance and the classification framework employed. The results from the estimation of this model are presented in table 3.

Table 3: OLS Regression analysis dependant variable average year 2 marks

$$Y = \beta_0 + \beta_1 TT + \beta_2 AV1 + \beta_3 ABS + \beta_4 SC + \mu$$

$\beta_0$	$\beta_1$	$\beta_2$	$\beta_3$	$\beta_4$	$R_A^2$
19.200	0.016	0.577	-0.246	4.499	0.604
(0.000)**	(0.073)	(0.000)**	(0.000)**	(0.000)**	

Number of observations is 305.

\* Significant at the 5% level using a two-tailed t-test. \*\* Significant at the 1% level using a two-tailed t-test. Note the regression analysis excludes overseas students as such students have no entry tariff points.

From table 3 the only independent variable which is not statistically significant is total tariff points on entry. Having controlled for first year performance, total tariff points on entry and absenteeism, the

introduction of a second year (level 5) contribution is significant in explaining second year (level 5) performance. The negative coefficient on the absenteeism variable highlights a statistically significant negative impact upon student performance. The constant term is significant, which is included to capture the impact of omitted variables and indicates these exist. However, notwithstanding this, the explanatory power of the model is high at 60% (the adjusted R-square). Other independent variables were also investigated including gender, mature degree entry, and degree entry with double award tariff points, but none of these were found to be statistically significant in explaining the average second year mark.

Next, attention is directed towards classification marks achieved; i.e., the classification marks achieved (which included the 25% second year (level 5) contribution) are compared with the average of other students (with no second year (level 5) contribution). Table 4 provides the results from

Table 4: Comparison between classification marks in final year (FA) where the second year mark contributed to final year classification (SC=1) and where it did not (SC=0)

Group Statistics

SC		N	Mean	Std. Deviation	Std. Error Mean
FA	0	111	56.97	9.027	0.857
	1	164	60.40	9.485	0.741

t-test on equality of means      $t = -2.994^+$       $p = 0.003^{**}$

Mann-Whitney Z                  $Z = -3.123$       $p = 0.000^{**}$

Number of observations is 275

\* Levene's test on the equality of variance indicates that the variance of the two groups is equal, therefore t-tests on the equality of the means for the two groups is based upon the equality of variance. \* Significant at the 5% level using a two-tailed t-test. \*\* Significant at the 1% level using a two-tailed t-test.

non-parametric analysis.

Table 4 clearly indicates that there is a statistically significant improvement in average award performance when the second year (level 5) mark achieved is a contributory factor to the classification mark. However, prior analysis and previous studies (see Green, 2011 and Foster et al., 2011) do suggest that other factors, such as the completion of an optional placement year, may impact upon final year performance. To investigate this further the following model is estimated using OLS regression:

$$Z = \beta_0 + \beta_1 TT + \beta_2 AV1 + \beta_3 DIS + \beta_4 SC + \mu$$

where Z is the average marked achieved in year 3 for purposes of classification;  $\beta_0$  is a constant term introduced as a rather ad hoc way of capturing the impact of omitted variables; TT is the total tariff points on degree entry; AV1 is the average mark achieved in year 1 modules; DIS is a dummy variable which takes the value of 1 if a placement year (or study abroad) has been completed and 0 if it has not; SC is a dummy variable which takes the value 1 if the second year contributes towards the final year classification and 0, if it does not, and  $\mu$  is a stochastic error term. The results are reported in Table 5.

Table 5 reveals that a second year (level 5) contribution, having controlled

Table 5: OLS Regression analysis dependant variable final year classification mark

$$Z = \beta_0 + \beta_1 TT + \beta_2 AV1 + \beta_3 DIS + \beta_4 SC + \mu$$

$\beta_0$	$\beta_1$	$\beta_2$	$\beta_3$	$\beta_4$	$R_A^2$
22.956	0.033	0.350	4.052	2.685	0.297
(0.000)**	(0.005)	(0.000)**	(0.001)**	(0.014)**	

Number of observations is 205.

\* Significant at the 5% level using a two-tailed t-test. \*\* Significant at the 1% level using a two-tailed t-test. Note the regression analysis excludes overseas students as such students have no entry tariff points.

for general academic ability and the completion of a placement (study abroad year) is statistically significant in explaining the final year classification (level 6) mark achieved, and confirms that the completion of a placement (or study abroad) year is associated with an improvement in final year marks of approximately 4%, which is consistent with prior studies (see, for example, Foster et al., 2011). Jointly for students who complete a placement (or study abroad year) and whose second year performance contributed to their final degree mark an average increase of approximately 7% is observed.

It is worth noting that the actual classification award achieved is at an individual level and dependent upon an individual student's mark profile. All of the analysis above is conducted at an aggregate level. A review of the marks confirmed at the June examination boards reveals that at an individual student level, the application of a second year contribution resulted in a positive increase in classification for 4 students, in 2011, for 8 students in 2012 (and a decrease for 3 students), and for 12 students in 2013, which represents a net increase of 8.5% for the 247 students graduating at the first attempt between 2011 and 2013.

### Discussion of the findings

On the basis of the evidence presented it was recommended to the University Teaching and Learning Committee (2013) that a second year contribution of 25 percentage points continues to be applied on the BSc Accounting degree. This was rejected by the Committee. Some of the arguments promulgated with regard to classification being determined by final year performance only are worthy of further consideration.

First, it is argued that student final year performance has been shown to be improved post the completion of a placement year; hence, attention should be focused upon final year marks. Furthermore, some students have advanced entry which would preclude a second year contribution. The evidence to support the former is substantive (see, for example, Green, 2011) and the results reported in this study support the benefits of placement. They also, however, indicate that a second year contribution on average results in a statistically significant increase in final year marks

incremental to that from the completion of a placement year. With regard to the latter, the authors have no detail as to the number of students entering degree programmes with advanced standing within the University as a whole, and this is an area which requires further research. However in the context of the BSc Accounting, all students within the period under investigation had completed year 2.

Second, the current educational environment is uncertain. Measuring and Recording Student Achievement (2004), the Scoping Group chaired by Professor Robert Burgess, concluded that the existing system of awarding first, second and third class degrees was no longer ‘fit for purpose’. The final report of the Burgess Group (2007) suggested that the current summative judgement (degree classification) should be replaced with a wider, more detailed, range of information which more fully encapsulates a student’s strengths and weaknesses. Largely as a result of this report all undergraduate students who entered university in 2011 will be issued with a Higher Education Achievement Report (HEAR) upon graduation. The first cohort of students to whom this applies has graduated (at the time of writing) and for them the degree classification system remains as an aggregate measure of student achievement. The Higher Education Academy (HEA) is currently facilitating a national debate and pilot study on an alternative or complementary system, namely a Grade Point Average (GPA) system. The stated reasons for considering a GPA system are “.....finer granularity of detail in a GPA scale; engagement and motivation of students throughout their degree programme; and international comparability with grading systems used particularly in the USA and China.” (2013, paragraph 2.6). The pilot study encompasses 21 Higher Education Providers (including South West College) and the dissemination of the results of the study is expected in 2014/15. Table 6 outlines the proposed national GPA scale.

Table 6: UK national GPA scale

Grade	Standard	Grade Point	UK current descriptor
A+	Excellent	4.25	Top 1st
A	Excellent	4.00	Good 1st
A-	Excellent	3.75	Low 1st
B+	Good	3.50	High 2-1
B	Good	3.25	Mid 2-1
B-	Good/Satisfactory	3.00	Low 2-1
C+	Satisfactory	2.75	High 2-2
C	Satisfactory	2.50	Mid 2-2
C-	Satisfactory	2.25	Low 2-2
D+	Adequate	2.00	3rd
D	Pass	1.00	Low 3rd or pass
D-	Marginal Fail	0.50	Marginal Fail
F	Fail	0.00	Fail

Higher Education Academy (2013, paragraph 3.3)

The finer granularity of the scale is evident but has been the subject of critical review (Soh, 2011) specifically with regard to inconsistent methods of application across institutions. It is not the purpose of this paper to make a detailed consideration of the GPA system; what is specifically relevant is that the pilot does not purport to prescribe a particular approach to progression weighting, although HEA does note that the pilot will provide the opportunity to consider the issues relating to progression weighting, or “...alternatively a unified approach to progression weighting for UK higher education.” (2013, paragraph 3.6)

Finally, the impact of university league tables must be considered. UK national university rankings are produced by The Complete University Guide (Mayfield University Consultants), The Guardian and jointly by



The Times and Sunday Times. The objective of the rankings is to provide prospective students (at the undergraduate level) with information to facilitate an informed choice on university selection. Essentially, publicly available data is aggregated and transformed into a university score which forms the basis of a rank and hence a league table is derived. The data employed largely relates to entry standards; student satisfaction; staff/student ratio; academic services and facilities expenditure per student; research quality; proportion of ‘good degrees’; degree completion rates and student career destinations. Different ways of aggregating this data results in different total rankings; for example, in the 2015 tables Ulster University is ranked 84<sup>th</sup> out of 123 universities according to The Complete University Guide, whereas it is ranked 93<sup>rd</sup> out of 116 universities in the Guardian (<http://www.theguardian.com/education/ng-interactive/2014/jun/02/university-league-tables-2015-the-complete-list>). Ironically, using different algorithms to aggregate raw data results in different rankings as does the use of different algorithms to determine degree classification, and the latter is used as raw data for the former. The criticisms of university rankings published in newspapers are wide ranging (see Wilson, 2002) and indeed Burgess (2004) refers to such rankings as ‘crude’, promulgating a concept of “potential value added” to be of primary concern to prospective students. It is beyond the scope of this paper to provide a detailed consideration of potential value added, but it is much more comprehensive than the definition of value added used in The Guardian rankings, which is defined as a comparison between ....”students’ individual degree results with their entry qualifications, to show how effective the teaching is.” (<http://www.theguardian.com/education/2014/jun/03/how-to-use-guardian-university-guide>)

The criticism of newspaper league tables which is pertinent to this paper is that of grade inflation. The argument is put very succinctly by Alderman (2007). “The more firsts and upper seconds a university awards, the higher its ranking is likely to be. So each university looks closely at the grading criteria used by its league-table near rivals, and if they are found to be using more lenient grading schemes, the argument is put about that “peer” institutions must do the same. The upholding of academic standards is thus replaced by a grotesque “bidding” game, in

which standards are inevitably sacrificed on the altar of public image - as reflected in newspaper rankings.” Concerns about grade inflation have continued to be expressed (see The Telegraph, 2012, 2013a, 2013b). Similarly, Queens University is reported as awarding 72.6% good degrees in 2015 and 69.1% in 2008 (an increase of 3.5%), with an associated fall in ranking from 22<sup>nd</sup> to 38<sup>th</sup>. Table 7 provides descriptive statistics for the years 2008 and 2015 for the award of good degrees.

The average increase in the award of good degrees observed in 2015 compared to 2008 is 9.28%, which is over two and a half times that reported by both Ulster University and Queens University and is statistically significant. Russell Group Universities (as constituted in 2015) report a lower average increase, but this is still double that of both Ulster and Queens and is statistically significant. Whilst this finding does not prove that there has been relatively wide-spread grade inflation and further research is required, it certainly provides ‘food for thought’.

## Conclusions

This study provides robust empirical evidence that a 25% progression weighting is associated with improved final year degree marks for students on the BSc Accounting degree. The authors are of the opinion that this reflects greater student motivation and engagement throughout their studies and results in a “better” (at least in the short to medium term) reflection of an individual student’s strengths and weaknesses. Both the HEAR and GPA are welcome developments, particularly if the latter does result in a unified approach to progression weighting in the UK. Given the findings of High Fliers (2014) that the UK’s leading employers insist on a 2.1 and that two of the largest employers PwC (1,200 vacancies) and Deloitte (1,000 vacancies) are recruiting in the areas of accounting and professional services, as we noted previously (Pogue et al., 2012, p150) “.....it is incumbent for institutions to avoid placing their graduates at a disadvantage in the employment market by continuing to utilise an algorithm which results in lower degree classifications than comparable institutions.”

Table 7: Descriptive statistics on 'good degree' awards

<b>Russell Group Universities 2015</b>	<b>2008 (%)</b>	<b>2015 (%)</b>	<b>Change (%)</b>
Mean	72.62	80.43	<b>7.80**</b>
Median	71.85	80.50	8.65
Standard deviation	6.49	5.13	
First Quartile	67.90	77.18	9.27
Third Quartile	75.20	84.38	9.18
Number	24	24	
<b>Non- Russell Group Universities</b>			
Mean	54.85	64.38	9.529**
Median	54.20	64.10	9.90
Standard deviation	8.33	8.32	
First Quartile	48.25	59.00	10.75
Third Quartile	60.40	70.00	9.60
Number	89	99	
<b>All universities</b>			
Mean	58.23*	67.508*	<b>9.28**</b>
Median	58.00	66.60	8.60
Standard deviation	10.79	10.07	
First Quartile	49.75	60.20	10.45
Third Quartile	66.75	74.70	7.95
Number	113	123	

Data source: The Complete University Guide (<http://www.thecompleteuniversityguide.co.uk/league-tables/rankings?o=Research&v=wide>)

\*Statistically significant difference between Russell and Non-Russell Group Universities using both a two-tailed t- test and Mann-Whitney test, at the 1% level. \*\*Statistically significant difference between 2008 and 2015 using both a two-tailed t-test and Mann-Whitney test, at the 1% level.

However, the results of this study do not provide definitive proof that students of Ulster are being disadvantaged, as noted by the University Teaching and Learning Committee “....it was difficult to attribute the improved final year student performance primarily to the Level 5 contribution given the lack of a fuller exploration of the other possible contributing factors.” Furthermore, the warning by Alderman (2007) with

regard to the grade inflation must be considered.

The minutes of the University Teaching and Learning Committee conclude “.....that, in view of the national debate on degree classification which had now broadened to include Grade Point Average, the University needed to consider this matter carefully before it changed its policy. Furthermore, if degree classes achieved greater prominence in league tables, and it was clear that the University’s methodology was significantly out of step with sector practices, the regulation might need to be revisited in the future.”

<http://www.ulster.ac.uk/academicoffice/download/TLC/TLC16Oct2013.pdf>

As the pilot study has ended, this will be the last of our papers on progression weighting. However, there remain a number of other aspects of the University’s degree classification algorithm which require investigation, specifically the imposition of a cap upon re-sit marks and the restriction in the number of student attempts at assessment. Both of these require further investigation, given that the HEAR can disclose the number of attempts that a student takes to reach their final attainment level and the proposed GPA national scale.

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## Research Article

# Using the tablet in political theory class: Promoting interactivity and active learning

Maire Braniff and Kenny McCartan

Theory is a compulsory module on most undergraduate Political Science degrees, yet it is one which fills most students with trepidation about the theory and texts which they encounter during the course. For Schaap “perhaps because of its abstract nature, political theory often polarises politics students: it either alienates or inspires them” (2005, p.51). The challenge for educators, academics and students collectively is to enhance learning, understanding and knowledge retention in this traditionally polarising topic.

Race (2001) highlights how learning is enhanced through experiential learning, through digesting information and reflecting on feedback. However, the traditional style of lecture tends to diminish interactivity, creativity and peer learning by the overuse of scripted slides and leaves little opportunity for debate and discussion, both crucial skills for a Political Science graduate (Tufte, 2003). The use of technology to facilitate interactivity in various Politics departments has become important, often reflecting the response or lack thereof to how deeply ingrained Web 2.0 technologies have become in other fields. Gormley-Heenan and McCartan (2009) explore the possibilities presented by the Audience Response System. Ralph, Head and Lightfoot (2009) have ventured into podcasting. Hence, the adoption of appropriate technologies to enable active learning in the traditional lecture and seminar setting is timely.

To engage students with the theoretical texts ranging from Hobbes, Rousseau, Arendt and Ricoeur, enhancing in-class interactivity with the aid of a tablet laptop provided an opportunity for self-assessment and discussion. This is not to say that multimedia is a panacea for the difficulties associated with teaching political theory to class polarised by the complexity and abstract nature of the subject; rather, it offers a potential for clarification, comprehension and knowledge retention

through the promotion of interactivity. The tablet technology offers the potential to equip the lecturer with a valuable mechanism to promote critical thinking, peer learning and feedback.

This paper outlines the experience of lecturer and students on a Political Theory module which incorporated a tablet laptop in lecturer and seminar environs to facilitate discussion, engagement and interaction. The paper also notes retention and attendance figures for the students, and their final exam results. The project was implemented within the first year of a new module, so it is presented as a qualitative case-study to highlight the pedagogic and technological pros and pitfalls of using such technology for engagement in Political Theory, rather than as a comparator to previous years' cohorts or grades.

### Teaching theory: challenges and pitfalls

Theory works in the abstract. Reflecting upon the philosophical and political thoughts of generations, “competency in political theory requires an ability to move from the general to the particular and back again, not simply by applying general principals to particular events and back again” (Schaap 2005, p. 51). How students draw meaning from the abstract and the general has the potential to limit student learning and divide the student cohort. Overcoming this with innovative teaching practices from role play (Schaap 2005), to using *The Simpsons* to demonstrate Mill's Harm Principle (Woodcock 2006), reflects a desire to enhance interactivity and foster student engagement with the abstract. While students often have ideals of what the political system ought to be an “attachment to the proper meaning of core political ideas may stultify their consideration of alternative formulations of these concepts” (Glover and Tagliarina 2011, p. 394). Crucially, moving students from an automatic series of responses or from an entrenched value position requires an approach based on interactivity and engagement with the material presented. Of course, this is made all the more difficult in the absence of a “settled wisdom” within the broad political science discipline, so the challenge remains to “invite reflection and to challenge students to repeatedly attempt to validate their basic assumptions both about what politics is and what politics ought to be” (Glover and Tagliarina, 2011, p. 398).



The challenges considered here can speak to the disciplines of social science more generally and in particular the task of delivering material to a large number of undergraduate students. Promoting interactivity displaces timidity, which is often propagated in a large teaching environment and particularly for students in political science it can serve to facilitate “sharing their legitimate opinions about the best way to achieve the ‘good society’” (Damron and Mott 2005, p. 370).

### Tablet technologies and interaction in teaching: opportunities for engagement

Traditionally, the university teaching model has focussed upon a passive method which can demotivate the learner. In recent years, theorists have highlighted the need for active engagement and interaction to take place to enable the construction of knowledge through dialogue and discourse (Buckley, 2011; Mc Kenzie 2002; Laurillard, 1993).

‘Tablet’ technologies are increasingly popular in modern society with Apple’s iPad and rival brands leading a revolution in the way many people interact with information. A ‘tablet’ laptop is a standard laptop with an interactive touch screen which is operated by an electronic pen. This gives the user the full range of functions of a standard laptop running Windows – such as MS Office, Internet access, and use of a keyboard and mouse – as well as facilitating ‘tablet’ features such as annotating text, drawing or highlighting. The use of a tablet laptop allows the lecturer to annotate and highlight material as the lecture progresses, which serves to retain student attention, draw emphasis to key terms and note down student responses during discussions. The ability to ‘write’ student comments onto PowerPoint gives the immediate ability to respond to ad hoc questions, to note student answers or visually highlight important pieces of information. There are also separate software packages which can facilitate wider use of handwriting for taking notes, drawing and annotating diagrams, writing onto images and webpages and other features.

The advantages of using a tablet laptop are similar to those gained from using an interactive whiteboard, namely increased engagement with the

lecturer and the learning materials, pacing the lecture more effectively, and active student involvement in the learning process (Egerton, Cook and Stambolis, 2008). These gains are repeatedly linked to positive outcomes for students (Swan et al.; 2010; Trowler and Trowler, 2010). Chickering and Gamson (1987) highlighted seven key aspects of engagement crucial to ensuring students gain the most from their participation in higher education: student-staff contact; active learning; prompt feedback; time on task; high expectations; respect for diverse learning styles; co-operation among students. Actively engaging students in the learning process through discussion, debate, collaboration with their peers ensures they have a better opportunity for contact with the lecturer; gain immediate feedback to queries or answers they give to questions; can focus upon learning rather than note-taking or passively viewing a presentation; facilitates support for a range of learning styles through inclusion of graphics, images, audio, video and other resources; and encourages collaboration among students through group exercises and involvement in discussions and dialogues. Using interactive technologies such as interactive whiteboards and tablets to facilitate active learning can help to motivate participants and help to focus learning away from the lecturer and onto the content (Swan et al., 2010).

There is a range of benefits to using interactive technologies such as tablets in class. However, this is not to claim tablet laptops and other interactive technologies will, by default, result in positive outcomes. A study by Smith, Hardman and Higgins (2006) stressed pedagogic changes and gains will require new thoughts and approaches to ensure their effectiveness, and their use will not simply revolutionise interaction in education. The use of technology must add value to the teaching and learning experience, not simply add a novel gimmick to the process. However, when used to facilitate active learning, it does appear there are benefits to be gained from using tablet technology in lecture and seminar scenarios.

### Engaging thought – implementing interactive sessions via the tablet laptop

The tablet was used in a theory module at Level 5 in both lecture settings

(with a cohort of 68) or in smaller seminar setting (cohorts of 20). Using the tablet laptop opened a new range of approaches for the sessions. In lectures, unlike other presentations, ‘gaps’ were left on key areas of the Presentation. These gaps were white space in or around text, blank pages in the presentation, or white spaces left around images of theorists or symbols related to the subject matter, leaving plenty of space for writing comments and key points raised during discussion once these points were reached during the live presentation.

Each lecture was two hours in duration. The attention span of students can wane well before two hours have concluded, so the presentations were designed with a 60-40 mix of presentation and interactive sections to help break up the two hours and to motivate the students to think about the content, discuss it with peers and feed back to the group. Notes of the students’ responses were then annotated directly onto the PowerPoint presentation as shown in Figure 1, giving the lecturer the opportunity to point out, record and emphasise the key learning points when they were raised. After the lecture, fully annotated slides were made available on Blackboard Learn for the students to access outside of the classroom. When using the tablet laptop in a seminar setting, the slides contained one key outline slide and then a series of slides with one or two key terms to allow for annotation. Addressing the set learning outcomes, students participated in small group work in the seminar setting. In order to ensure they participated fully; each group had to change ‘speaker’ each time they answered or put forward a comment. The students’ responses were once again annotated directly onto the PowerPoint presentation, giving the lecturer the opportunity to reinforce the key learning points raised. After the seminars, the annotated slides were emailed to the students and also posted on Blackboard Learn for the respective groups, as shown in Figure 2.

### Observing Active Learning and Interactivity: Does the tablet help?

The introduction of a tablet to promote interactivity within the lecture setting produced a lively, collaborative and inclusive learning environment at which attendance remained above 78% for the 12 weeks. The mid-semester survey also showed the students enjoyed using the tablet

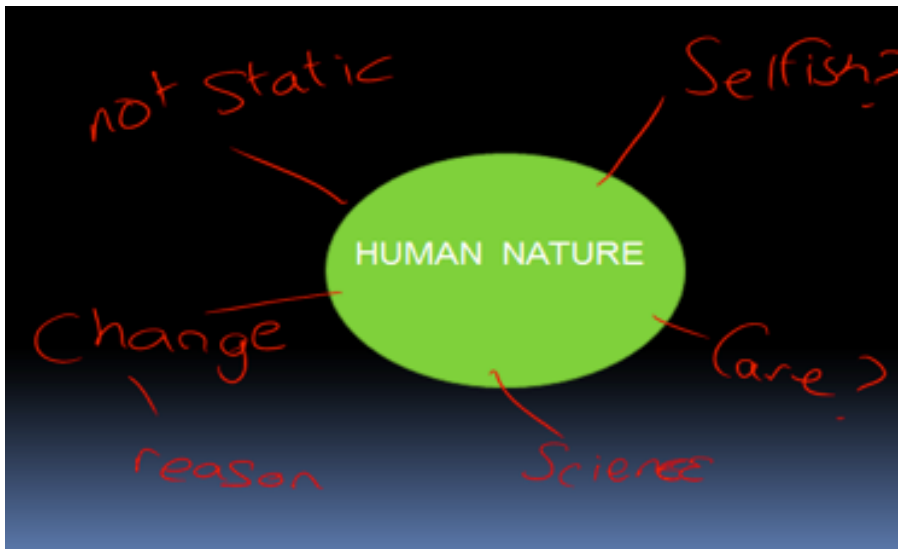


Figure 1: Lecturer-Annotated Slide from Student Responses  
from Lecture on Rousseau

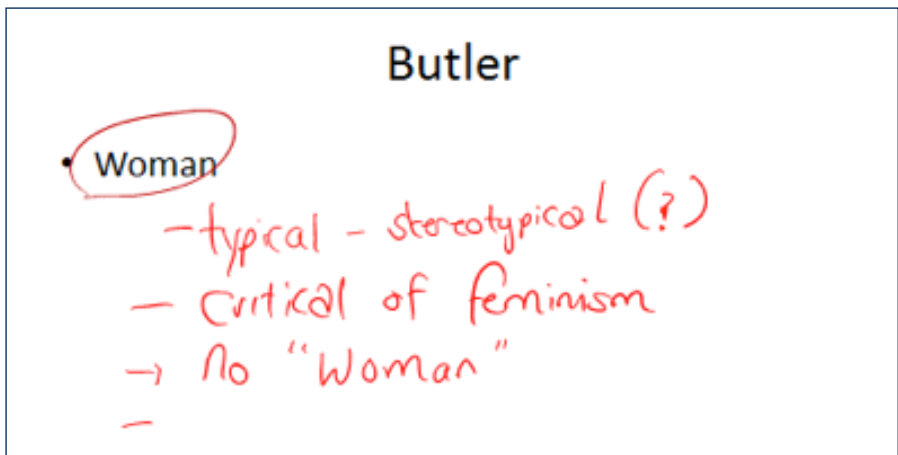


Figure 2: Lecturer-Annotated Seminar Slide from student responses  
on Seminar on Judith Butler

laptop in their learning, with 63% of respondents agreeing they enjoyed using the tablet in class. The remaining 37% were neutral response.

Possible challenges emerged during the course regarding the utilisation of the tablet. One important potential drawback was highlighted by a student during the focus groups, who felt the annotated copies give non-attenders the opportunity to know what has happened in class; thus, it could diminish the purpose of being in class. However, this concern was not realised, as attendance in lectures remained steadily high, with more than 78% of students attending every week.

The improved interaction was discussed and this style of discursive learning was praised by the group who felt “interacting helps [us] to learn more.” This was reaffirmed by students, who said:

“Obviously everyone has different ways of learning, but when you were asked questions or when split up into groups it helped me remember it more from actually doing it than being talked at.”

In addition, this increased interaction was praised for helping the students to gain confidence in both the learning objects and in talking in front of others:

“...having everyone talking to each other makes it a little more personal. For me I was more confident at speaking out.”

When putting forward reasons for this increased confidence, the students focussed upon the immediate feedback they received when they gave an answer:

“You felt like you achieved something. You did the activity and you knew you were taking it in when the notes were made [via the tablet]. Sometimes in other lectures where you are talked at for two hours, you don’t know if you are learning or not until you sit down to do the exam.”

“I think that when you were asked a question and you answered it, if you

got it right then you gained confidence, if you weren't right, you [the lecturer] explained it more which is helpful. Rather than going away for a week and not knowing if you are doing the right things or not."

The focus group participants felt the use of the tablet to take notes and engage with the students slowed the pace of the lecture, but this was praised as a benefit because it broke the two hours into shorter, focussed sections:

"For me it helped to split up the class a bit. It made it easier to follow. When it is constant note reading it is very difficult, but here it was split up and it made it easier."

"...sometimes when you are faced with a module like that you want to run the other direction. But the way it was broken down it was more enjoyable."

An added benefit was the experience of seeing a lecturer filter important material and draw together common themes. The group felt the ensuing discussion encouraged them to reflect on their own practice and develop a more effective note-taking approach:

"In the lecture you [the lecturer] noted down what the most important ones were rather than us making a list and not knowing what is important and what isn't."

"You [the lecturer] didn't skip on, but you made notes and it gave us time to catch up and think about our own notes too."

The survey of the students revealed that 69% of respondents agreed or strongly agreed that "In Political Thought, the lecturer's use of the Tablet Laptop to annotate notes and discussion in class was a positive learning experience" with no one responding negatively, opting instead to not answer. Likewise, 71% of those responding agreed that they remembered more when the Tablet was used. Regarding interactivity, 40% responded that they felt more at ease in this module than in others. The other 60% felt neither more nor less comfortable in the sessions compared to others.

In the comments section of the survey students also responded positively about the increased interaction in the class, noting how it made them feel they were actually learning, and not simply passively note-taking. One student added: “the teaching style made me more confident and I felt I definitely learned something”; and a further student commented: “I enjoyed this module despite it being a difficult subject”.

The survey asked students to offer suggestions as to how the tablet could be used differently, with one student remarking that students could be offered the opportunity to use it in their presentations or discussions. This is certainly worth further exploration and study.

### Actively engaged? Was the tablet effective in facilitating interaction?

One of the most important objectives to this initiative was to encourage students to engage interactively with a traditionally complex and polarising module. These findings suggest that the lecturing style was enhanced by the use of the tablet laptop which promoted and supported interactivity and feedback.

The key purpose of introducing the tablet laptop into this Level 2 module was to foster active learning through greater interactivity with the desired impact to inspire enthusiasm for political theory and deepen critical thinking. The benefits for the students and instructor were wide-ranging:

- It promoted enjoyment and engagement with the texts, concepts and theories under debate;
- For students, it allowed them to identify and monitor their learning within a lecture setting as it provided instant feedback;
- The use of the laptop slowed the pace of the delivery of the lecture material and allowed time for discussion, feedback and reflection;
- It allowed the lecturer and students to engage in collaborative learning through a comprehensive discussion and then streaming of the discussion to points annotated on the screen;
- It enhanced participation in and attention to the material being delivered;
- It provided instant feedback on formative learning;

- It captured in-class learning for review on 24/7 basis.

Students proposed that a key benefit of the tablet was that they were able to immediately check and reflect on their learning following the annotation on the slides. For this immediate formative feedback to take place, the students had to be aware initially of the goal/standard being reached for in the class, so clear and well advised learning outcomes are mandatory. Furthermore, the focus group revealed that students were able to leave the class with the confidence that they had improved their knowledge and learning; this was measurable against the annotated slides, as 71% of those responding agreed that they remembered more when the tablet was used. Therefore, the tablet encouraged students to engage in appropriate active learning, and through the process of instructor and student feedback on the active learning, the annotated slides became a marker of their learning.

Active learning is rewarding and even entertaining, but in a class of 68 students it is sometimes difficult, particularly when ,trying to draw students back to the lecture. This is a key area where the tablet laptop becomes highly effective. The visual connection being made between what students are saying and the lecturer's material through the annotated slides means that despite the lively discussions taking place, students are quickly reoriented to the lecture material via the notes being made by the lecturer.

An added benefit for one student lay in the training being delivered on how to make and take effective notes in a lecture setting. For this student, the experience of seeing a lecturer filter important material, draw together common themes, and analysis and discussion encouraged the student to reflect on their own practice and develop a more effective note-taking approach.

## Conclusion

As we have noted, theory modules can polarise and isolate students from the knowledge acquisition and building process. Feelings of disaffection from the topics, theories and practical application can often embed quickly in a semester, leaving a student alienated and uncertain about his/



her prospects on the course. Our study showed that by moving towards the interactive approach as facilitated by the tablet laptop helped to foster engagement with the students and enabled discussion in large lecture settings. The tablet laptop promoted interactivity, reflection and critical thinking within a lecture environment. Asking students to comment on a definition, a concept, a person or even a model that appears on a slide and noting down their responses and the collaborative discussion that emerges on that slide has the three-fold impact of retaining attention, fostering reflection on learning and interacting with the delivered material. The small scale of this study makes it impossible to generalise from the results, nonetheless it does present a positive message from both academics and students regarding facilitating interaction via a tablet laptop. A further study could investigate whether these results are repeatable with a larger cohort across a range of modules. In addition a study to investigate the potential impact of students using tablet technologies to enhance interactivity and learning is perhaps worthy of further inquiry, particularly in light of new technologies emerging such as the iPad, Android tablets and Windows 8 platforms. Engagement with the lecturer, their colleagues and the learning object is a requisite for any successful student experience. Using technology to do this is simply another means of using the resources available in an effective and productive way to facilitate learning, which is ultimately the aim of all teaching, irrespective of the medium.

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## Descriptive Account

### Physio-Learn – developing a modern device responsive social multimedia teaching tool for physiotherapy students

Philip O'Neill, Judy Bradley, Fidelma Moran and Brenda O'Neill

The use of eLearning material in medical education and its effectiveness has been well documented (Bloomfield et al., 2013; Ruiz et al., 2006) including the use of online video training (Holland et al. 2013; Berk, 2009) and also the experimental use of social media and its teaching applications in Higher Education (Mateer et al., 2014; Cheal et al. 2012). Physio-Learn was designed in collaboration with a physiotherapy team from the School of Health Sciences and The Office for Digital Learning (ADDL). It was developed to help physiotherapy students visualise how a real patient with respiratory disease might present, in order to help prepare students for clinical practice.

#### The impact of respiratory disease

In 2006, deaths from respiratory disease accounted for almost 14% of all deaths in Northern Ireland (Service framework for respiratory health and wellbeing, 2012). Shortness of breath (breathlessness) is one of the most burdensome symptoms reported by patients with Chronic Obstructive Pulmonary Disease (COPD) (Joshi et al., 2012). High numbers of patients with respiratory disease are admitted to hospital with an infection every year, which in turn has a major impact on health services, both locally and nationally.

Physiotherapy can help patients with respiratory diseases to manage a range of problems such as breathlessness, sputum retention, poor cough, low oxygen levels and general deconditioning and reduced mobility and function (Bott et al., 2009).

#### Current respiratory teaching of Physiotherapy at Ulster University

Year 1 BSc Hons Physiotherapy students are typically males and females between 18-23 years. Current teaching on the respiratory component

of the course includes lectures, practice of skills and face-to-face demonstrations with class role-play where staff demonstrate and students practise a range of techniques on each other. This teaching format for the topic of breathlessness was discussed with a small focus group of physiotherapy students (n=11) who had just completed the module as well as their first clinical placement in respiratory health. Overall, the existing online content supporting the topic of breathlessness within the course Virtual Learning Environment (VLE) had been described in the focus group as “Text heavy” and “Not engaging enough”. Students had indicated that it was very difficult for them to visualise how a real patient with respiratory disease might present, or to gauge the impact of the respiratory disease on the patient. It was also hard for students to envisage which physiotherapy treatments might help patients to manage symptoms such as breathlessness.

Most physiotherapy students will not encounter a real patient with breathlessness until their first work placements within a hospital setting at the end of their first year. Specifically for the topic of breathlessness, students suggested that:

- A real example of a breathless patient would help their learning and understanding, and videos illustrating treatment techniques would be really helpful;
- Embedding theory and pathophysiology using a visual format would be helpful for understanding the assessment and management of the breathless patient;
- A resource that could be accessed on a range of devices outside of the teaching slot on the timetable would be helpful, and it could also be used both for revision during term time and as much needed reference while on placement within a hospital setting.

The teaching team considered these suggestions and they informed the decision to consider a collaborative multimedia solution with the Office for Digital Learning (ADDL) within Ulster University to support teaching on the topic of management of the breathless patient. Recent data related to social networking has shown that, as of January 2014, 74% of online

adults use social networking sites, with highest users in the 18 – 29 age group (Pew Research Center, 2014). In 2013 there were 12 million United Kingdom (UK) Twitter users. Statistics for the distribution of Twitter users in the UK in 2014 by age group show that the age range 18 – 24 accounted for 24.5%, and the age range 25 – 34 for 25.4%. Both groups together account for half of all UK based twitter use (Statista, 2015)

As typical students for this subject area are Year 1 BSc Hons Physiotherapy students (age range usually 18-23yrs), it was decided that a social network learning aspect would be added, making use of existing age group social networking skills. It has been reported that the use of Twitter in educational content can increase student engagement and help to improve grades (Junco et al., 2010).

### Proposed solution: Physio-Learn (Learning. Engaging. Accessing. Responding. Networking)

This solution has been designed as a modern responsive social multimedia teaching and learning tool which puts the learner, the patient and the teacher all at the heart of its design. The content is specific to the topic of “Management of patient breathlessness”.

### The Interface

This was developed using HTML5 for maximum flexibility to run on a number of modern systems using a modern HTML5 enabled Web browser. The Physio-Learn teaching tool can work across a wide range of screens and devices, including desktop/laptop computers and a range of tablet and mobile devices. It can also be plugged into a VLE to report quiz scores to grade books, and function as a standalone subject, or as one of a number of future themed subject individual learning packs. If developed further, it could be marketed as a teaching product to other universities and hospitals both in the UK and internationally in the area of physiotherapy or, indeed, other teaching related topics.

### Simplifying the user experience

When the student logs on to Physio-Learn they view a very simple and clean interface, with clear instructions on what to do. There are only three main sections:

- Home: This directs the students to a long scrolling visually engaging page covering a number of facts and interesting background information on the topic of breathlessness. This ends with a real patient talking about the impact of COPD on their life. This page is designed to have an emotional concept, putting a real person's face and impact statement on the subject that is being studied;
- How To? Students are then directed to go to the "How to?" section of the course. This explains the basics of how to use all of the social media elements of the course – such as Twitter, Pinterest and Vimeo;
- Knowledge Area: This contains the actual teaching content, which has been divided into 3 main sections: A, B and C. The student initially must take each section in order. An assessment quiz at the end of each section will then evaluate students' knowledge, and advise them to proceed or to retake that section again depending on their score. When they have unlocked all sections (A, B and C) they are given access to all the teaching content as a book-markable page for easy access for on-going review and revision.

## Teaching Content

After expected learning outcomes are presented, the teaching content is video focused with little text usage, using a simple clean interface. These professional videos contain assessment of a real patient and there is engaging 3D content, graphic overlays and narration to maximise student learning and video value. Students have full control of the video display, and they can also alter the screen to full size on their computer or mobile device.

All video is high definition (HD) so it projects with high quality on even the largest or smallest of screens. The video and Physio-Learn interface adapts to the way it is being held, either portrait or landscape, for maximum usability. The top and bottom sections of the interface are pinned in place. This allows the key interface controls (and also Twitter, Pinterest, Mail icons) to stay always in easy reach regardless of the size of screen used or direction of screen.



## Social Learning Content

At any time during the course a student can make comments on the Physio-Learn private Twitter site, or be directed to find and post content to the Physio-Learn Pinterest site. At the end of each knowledge section, students are invited to click on the Twitter link, where they are expected to exchange views and/or content about the topic of breathlessness for the section they have just completed. They could also be set an assignment such as finding and contributing topic-related content to the Physio-Learn Pinterest board.

Physio-Learn has the capacity to stage key social teaching events, for example an invited guest, international physiotherapist or VIP health scientist Tweeter can tweet live to the class on current research or new emerging techniques, followed by a tweet and answer session. These live debates or commentaries on topics via Twitter will help maintain interest, keep knowledge current and help students to continue to develop their skills and clinical reasoning on this subject.

With the use of a Pinterest Board students create a legacy item that will be viewed by the next cohort of students to take the class. In this way the students are not only learning from existing content provided; they are, indeed, contributing and growing the content in the course. Teaching staff, having full administration rights, can filter the best content, making it even more valuable to the next course.

The video clips have a social element. If the student has a basic Vimeo account they can “Like” or “Comment” on the video. For teaching staff, this allows them to access and collect a wide range of useful user data and graphs via their Vimeo statistics page. It is hoped that patterns of best practice will emerge, influencing future video development for the site to make it an even more student focused learning object.

## Physio-Learn Prototype - Student Evaluation

The first cohort of BSc Hons Physiotherapy students had brief access to Physio-Learn towards the end of their year 1 Cardiorespiratory module (May, 2014). A random sample from the class (17/56 students) were

invited to provide views about Physio-Learn on the topic of breathlessness using a questionnaire. The questionnaire contained five questions, which used a Visual Analogue Score (VAS) scored from 0 (not useful) to 10 (very useful) and two open questions to explore strengths and weaknesses of Physio-Learn. The results are presented in Table 1.

### Strengths and Limitations

Physio-Learn received very positive feedback from students (Table 1). The key strengths of this project included the use of a real patient with COPD and the ease of use and ability to access the material on a range of mobile devices, including tablets and phones (Table 1). One limitation, which the team plan to address when further developing Physio-Learn, is to include more topics other than breathlessness, as this was the suggestion most frequently requested by students (Table 1).

The ability to reuse this teaching template adapted to a range of modules within Physiotherapy or indeed a wide range of other HE teaching subjects and the potential commercialisation to hospital staff training subjects is high. However, this is subject to a fuller investigation on both longer term student feedback and impact on student learning and retention evaluation study.

### Conclusion

This project resulted in the development of “Physio-Learn,” a responsive social multimedia teaching template on the topic of “Management of patient breathlessness”. It has been enthusiastically received, with a strong desire from Physiotherapy students for more topics delivered through this creative medium.

Recently Higher Education organisations globally have shown much interest in the development of Moocs (massive open online course) and Spocs (small private online courses) (BBC, 2015). Similar to aspects of Physio-Learn, these make heavy use of high quality video teaching material and use social media tools to attract and hold student engagement and active involvement in their courses. With the increasing student demand for digital learning experiences that can start on

one device and can be continued on another without any noticeable degradation to the user experience, the future of eLearning will become an increasingly mobile (responsive) and less desktop (fixed) experience. Higher

Questions 1-5 used a Visual Analogue Score (VAS) scored out of 10 and results are presented as average scores and percentages (%).

1. Please indicate your overall impression of Physio-Learn: Management of breathlessness.  
From 0 not helpful to 10 very helpful  
Average = 8.5/10 (85%)
2. Overall, how useful is the current content of Physio-Learn for supporting your learning and understanding about the management of patient breathlessness?  
From 0 not useful to 10 very useful  
Average = 8/10 (80%)
3. Physio-Learn offers flexible access on computers, tablet devices, iPhones/ smart phones. Please indicate if you think this will be important for your future access to Physio-Learn.  
From 0 not important to 10 very important  
Average = 8.7/10 (87%)
4. What do you think of using Social Media to help you learn this subject?  
From 0 not helpful to 10 very helpful  
Average = 8.1/10 (81%)
5. Please indicate your views about whether we should add new topics to Physio-Learn.  
From 0 not worthwhile to 10 very worthwhile  
Average = 8.9/10 (89%)

Questions 6 and 7 were open questions and common themes have been summarised and presented.

**6. One thing I particularly liked about Physio-Learn was:**

- The layout and ease of access; you can access it most places you go
- The test questions and quizzes
- How easy it was to use
- Videos: helpful for learning; are easy to use when visualising content; and especially of our lecturers (familiar faces); engaging and a change from staring at a book
- Up to date and current. Interactive learning easier/more interesting than books
- That I can use my smartphone and access information quickly on the move

**7. One thing I would have liked in Physio-Learn was:**

- More content
- More topics other than breathlessness;
- More examples of patients (different levels within illness)
- More videos demonstrating the use of equipment
- More variation of videos regarding symptoms/conditions
- Expand Physio-Learn and include info from the other modules; it's a great platform to inform people, possibly key issues/info about physio
- Facebook page
- If possible make sure you don't have to view all videos every time you log on

Table 1. Summary of Physio-Learn (prototype) student evaluation

Higher education will increasingly be required to develop a range of agile and responsive online teaching solutions that offer both high production values and high social engagement.

Award winning: Physio-Learn was Runner-up in the RSCni eLearning Innovation Awards (2014) in Higher Education for Teaching and Learning. Project Video Demo: <http://player.vimeo.com/video/95489526>

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## Descriptive Account

### Encouraging the adoption of technology facilitated learning (TFL): Communities of practice as a possible solution?

Clare Carruthers, Heather Farley, Una McMahon-Beattie, Steve McPeake and Christine Wightman

#### Introduction

This descriptive account details a project conducted within Ulster University Business School (UUBS) in relation to the development of a Community of Practice (CoP), designed to support staff in the implementation of effective technology facilitated learning (TFL). Over recent years it had become apparent that an informal community already existed across UUBS in relation to the uptake and adoption of various aspects of TFL, hence this project sought to galvanise that progress and, further, formally develop this community for the benefit of staff and students. The aim was to begin to develop what would be an evolving portfolio of support resources for staff that would in turn enhance the student learning experience. The project was facilitated by the CHERP Development Fund 2013-14.

The project team identified four areas of good practice (ePortfolios, Wimba voice authoring/email, Turnitin/Grademark and Turning Point), currently being used by key members in their learning and teaching (L&T) practice. The incorporation of these tools was designed to improve student assessment and feedback experiences and further embed the Ulster Principles of Assessment and Feedback for Learning. Over two academic years the project team gathered pedagogic evidence of the effectiveness and potential limitations of these tools. The data were used to develop best practice guides, related case studies and wiki how-to support pages that could assist other staff across the University in the implementation of the technologies. The overall aims of this project were:

- To extend the evidence base as to the application and effectiveness of TFL;

- To develop a series of resources to include best practice case studies, user friendly guides and wiki “how to” support in the use of TFL for assessment and feedback purposes;
- To mentor staff in the implementation of the various technologies;
- To evaluate the effectiveness of a Community of Practice in relation to the adoption and uptake of various technologies for assessment and feedback.

### Communities of Practice and TFL in Higher Education

The rationale for this project was drawn from the evidence that CoPs can be useful in embedding and sustaining innovation in higher education (HE), notably in relation to the utilisation of new technology. CoPs are described as groups who “don’t necessarily work together every day, but they typically meet because they find value in their interactions. As they spend time together, they typically share information, insight and advice.....They become a community of practice” (Wenger et al., 2002: 4-5). This concept is increasingly gaining ground in the HE arena, where the benefits can be harnessed to advance knowledge and share best practice, both in pedagogical terms and in discipline specific contexts. This is evidenced by a growing body of literature in the field, including that of Putz and Arnold (2001), Ellwood (2002), Elwood and Kelnowski (2002), Price (2005) and Moore (2008).

Given the context of the ‘digital native’ generation, who bring their “new approaches to learning and consequent expectations of the classroom instructor” to HE (Nugent et al., 2008: 51), coupled with the move towards full integration of delivery and support for all aspects of student learning via Virtual Learning Environments (VLE), the project team considered it opportune to explore alternative mechanisms that incorporated aspects of technology facilitated learning and subsequently, to share best practice in relation to it. Concomitantly, there is an increasing evidence base that demonstrates the need for and the benefits of more innovation in the use of technology in supporting assessment and feedback for learning (Nortcliffe and Middleton, 2007; Rotheram, 2007; Merry and Orsmond, 2008; Hepplestone et al., 2009; Hepplestone, 2011; Parkin et al., 2012; Carruthers et al., 2013).



However, many barriers to the uptake of TFL still exist. Jones (2004) identifies barriers, both perceived and actual, as including academic staff confidence levels, access, support, training, time, resistance to change and lack of awareness of the benefits the use of the technology can bring. Even where training is provided, a lack of a pedagogic rationale for the use of the technology means that such training is often unsuccessful (Veen, 1993, cited in Jones, 2004). The literature cites other reasons, including the expectation of technical failure at the time of delivery (Bradley and Russell, 1997), organisational structures that inhibit innovative approaches to the use of technology in teaching (Cuban, 2001) and a lack of awareness of the pedagogic benefits (Cox and Sorensen, 1999). Similarly, in their study on the barriers to the uptake of web based technology in teaching, Pajo and Wallace (2001) found that the main barriers were time, a perceived lack of training and skills and scarcity of support and resources.

The underlying theme in many of these issues relates to confidence and competence, underpinned by training and professional development opportunities. The need for such professional development is not just in relation to instructional use of the technology, but also in relation to the underpinning pedagogic rationale for the use of the technology in learning and teaching, in specific discipline contexts. Anderson (2014 :17) discusses the relationship between pedagogy and technology, noting that “technology is not an end in itself (and)...without pedagogy is very unlikely to be effective”, noting that it should be driven by learning and teaching goals and underpinning pedagogic rationale. More importantly, he goes on to discuss the significance of training and professional development in achieving such. Nugent et al. (2008) discuss the need for pedagogically informed decision-making around the selection of appropriate digital technologies for learning and teaching and the need for the ability “to be able to select those tools that are best suited to their learning goals – those that seamlessly integrate with and complement the subject matter” (2008: 52). It was the intention here that in developing a CoP to support such uptake, these barriers may in some ways be overcome and the resources developed would assist in that informed decision-making. With that in mind, the resources were designed from a pedagogic

underpinning, relating to the effectiveness of each technology in learning and teaching contexts. Furthermore, the expectation is that they will be used in professional development contexts, hence addressing the issues of confidence and competence, through creating professional development opportunities.

In discussing the growing need to integrate digital technologies into modern HE teaching and learning practice, Nugent et al. (2008) identify the underlying importance of training in and selection of the most suitable technologies in different teaching contexts. They suggest that the traditional approach of stand-alone workshops is limited in supporting professional development to this end, in that on their own they are unlikely to affect significant change in practice, as staff are then left to “sort out the detail of its instructional integration in their field outside the context of professional development” (Nugent et al., 2008 :52). In light of this, a strategy is proposed for what is termed faculty learning communities (FLCs), or a type of CoP that can provide a “supportive space for faculty to explore, evaluate, and adopt new instructional practice and tools” (ibid: 53). In particular, the researchers found that such communities can help support “the exploration of digital technologies and their integration into teaching and learning” (2008: 56).

The intention of this project then was that such a CoP could help address and alleviate some of the barriers to the uptake of technology within the Ulster University Business School and could be transferred across the institution. Indeed, Treleaven et al. (2012: 747) note specifically the role of CoPs in disseminating innovative HE approaches in their ability to “seed activities”, while Wenger and Snyder comment that they facilitate the sharing of “experiences and knowledge in free-flowing, creative ways that foster new approaches to problems” (2000: 140). With this project the intention was to deliver this through the development of case studies, guides, wikis and staff mentoring, all of which was underpinned with pedagogic evidence gained through action research and reflective practice.

### Project Design/Methodology

The project design was to evaluate the use of four case studies of various digital learning and teaching tools in practice in various contexts across

the Ulster University Business School for various types of assessment and feedback. As noted above, these included the use of ePortfolios, Wimba voice authoring/email, Turnitin/Grademark and Turning Point. The existing evidence base for the use of these technologies in learning and teaching was assessed and expanded through a range of techniques. The research techniques (conducted over two academic years) included a combination of staff and student focus groups, student surveys, and staff reflective logs. The research instruments were designed to explore how the technologies could support the implementation of the Ulster Principles of Assessment and Feedback for Learning, as well as highlight any staff and student issues in relation to their implementation. In total 421 students across all undergraduate levels (L4 - L6) and 8 members of staff participated in this aspect of the study. This generated both quantitative and qualitative data in relation to how staff and students used the technologies, which were then used to develop best practice guides, case studies and wikis over the course of semester two 2013-14. This facilitated the development of resources that were pedagogically evidence-based, with the overarching principle being that of pedagogy first, technology last.

### The Resources – Guides, wikis, case studies

The outputs of this project were the resources discussed here with the intention that they be utilised to support, extend, share and embed good practice in relation to technology facilitated learning in aspects of assessment and feedback. These were also complemented with the mentoring roles of the project team. An additional and important ‘output’, however, was the establishment of an effective CoP across Departments and campuses in the Business School, creating an important collaborative platform for colleagues to share best practice, and support one another in the implementation of effective TFL.

The guides offer user friendly, jargon free advice about how the technology might be used in practice, along with top tips for effective implementation, guidance on how each technology can be used to implement the Ulster Principles of Assessment and Feedback for Learning, and qualitative statements from the students about their effectiveness

for learning. Each guide then provides a link to a more detailed case study of the technology in a specific context, as well as step-by-step instructions in the Blackboard Learn+ wiki staff support area. Figs. 1 and 2 show an example of one of the guides (Wimba audio feedback), and Fig. 3 shows a screen shot of the related case study.

### Assessment and Feedback – Making the Most of Technology

#### Wimba Audio Feedback

**What is it?**  
*Wimba is a third party tool in Blackboard Learn+ that allows you to provide audio feedback to students through the grade centre or directly to their University email address.*

**Why use the tool?**  
*Can provide rich, easy to access, comprehensive qualitative feedback and/or short feedback statements for drafts, project supervision etc.*

**What can I use the tool for?**  
*Essay and assessment feedback (formative and summative), voice feedback within the grade centre and voice email messaging.*

**How can it help my students?**  
*Ease of access, re-access and availability, convenience, remote access, provides more detail, promotes feed-forward learning, can be personalised.*

**How can it support my practice?**  
*Provides richer feedback, can be time efficient, improves feedback quality, can be used with individuals, groups or whole cohorts, all contained within Blackboard Learn+.*

For further guidance and support see <http://wiki.ulster.ac.uk/display/VLESUPPORT/Staff+help> For case study support see [CHERP Website>SupportTaL](#)

### Assessment and Feedback – Making the Most of Technology

**What do students say?**  
*Very useful as it was very accessible, high quality, easy to use, easy to understand, clear and concise. I feel that it is a very useful tool as I am able to go and listen to the feedback when I want so that I can keep up to date on where I am going wrong.*

*I believe this form of feedback is not only extremely informative but an easier way for students to understand where they picked up marks and lost marks in their essay.*

**How easy is it to use/how steep is the learning curve?**  
*Easy to use, learning curve minimal.*

**Can it help me embed the Principles?**  
*Yes, Principle 3: Deliver timely, high quality feedback and Principle 4: Provide opportunities to act on feedback.*

**Top Tips**  
*Brief students in advance, use a “Test Student” account, test in small cohorts, consider practicalities – door sign when recording, divert office phone etc., personalise the feedback, provide annotated work and an opportunity to discuss.*

For further guidance and support see <http://wiki.ulster.ac.uk/display/VLESUPPORT/Staff+help> For case study support see [CHERP Website>SupportTaL](#)

Figures 1 and 2: An example of one of the guides (Wimba Audio Feedback)

## Audio Feedback - A Case Study

### Context

Novicki and Middleton (2007) propose 'a strategy for integration of digital audio into assessment feedback to promote self-forward student learning' (2007:8) in that it encourages self-reflection and student learning through feedback into feed-forward and ultimately 'in the long term has the potential to increase student academic performance' (2007:3). Importantly they also recognise it as having the potential to bring benefits to the academic tutor in that it can be time efficient in comparison with some other feedback mechanisms, thereby reducing workload (2007). The benefits of audio feedback are also identified by JISC (2010) as including more personalised communication, the opportunity to present tone of voice, being motivational and giving specific and directed advice on how to improve. Further evidence of best practice is presented by King, McGuire, Flynn and (2008), Rothbarth (2000) and Novicki and Middleton (2007 and 2008).

### Design

The project design was the use of two case studies of audio feedback in practice across a level 5 (L5) and level 6 (L6) module, representing 118 and 34 students respectively. In each module the students were required to submit an individual essay and attachable audio feedback was provided via the grade centre in Blackboard Learn+. The University of Ulster generic assessment criteria and for qualitative work at L5 and L6 were applied in the marking of the work (University of Ulster Assessment Handbook, September 2012). The project was conducted in the Department of Hospitality and Tourism Management, Ulster Business School, University of Ulster, semester two, academic year 2011-12.

Staff recorded the feedback using their PCs and recording headsets and upon completion of recording the audio file was made available in the students' personal grade centre along with their grade. One copy of the file the students were asked to

email the lecturer to confirm that they had received the file and listened to the feedback and they were then emailed their individual assessment criteria grid indicating where they achieved their marks. The annotated copy of the essay and the assessment grid were then made available in hard copy at the next available lecture, regardless of whether the students had accessed their audio feedback or not.

### Issues and Outcomes

Ultimately this study found that on the whole students favoured audio feedback over written feedback because they valued its benefits including the ease of access and convenience, the level of detail of feedback, the ability to re-access and listen again and its ability to facilitate feed-forward learning. It also highlights that students would like to see further use of audio feedback in other aspects of their courses and that they would also like to see it used alongside some of the other traditional methods of feedback such as completed assessment grids and hard copies of their work annotated with lecturers' comments. It also highlighted some technical issues in relation to its implementation that help provide useful practical recommendations for other practitioners. These practical recommendations may ensure the smooth implementation of audio feedback into modules and are as follows:

#### Recommendations for Students

1. Provide details of expectations of audio feedback in module handbook.
2. Brief the students in advance as to why audio feedback is being used and how to access their feedback and counter potential technical difficulties.
3. Provide an opportunity for students to access any marked assessment work in addition to the audio feedback that might also be useful for them and an opportunity for them to discuss any aspects of the audio feedback with the lecturer.

#### Recommendations for Staff

1. Attend set up training in the use of the Audacity voice recording tool in Blackboard Learn+.
2. Try not to use audio feedback initially with small cohorts, until such times as the practitioner becomes familiar with the technology and is aware of any time inefficiencies that they feel it might create.
3. Keep a reflective record of the experiences of using audio feedback, so that in keeping with the concept of reflective practice, subsequent activities can be redesigned based on those reflections.
4. Set up a 'best' student account in Blackboard Learn+, where you might practice the audio, grading and uploading any attachments; this way, practitioners will be able to see exactly what students see when they access their feedback, which again may help eliminate any potential technical problems.

Although this project involved only a relatively small sample it has now been used as the basis for a more extensive project that involved 6 undergraduate modules at all levels, across five courses and two semesters. For formative and summative assessment feedback. Further audio voice authoring/record training has now taken place in the Department of Hospitality and Tourism Management to support the extension of this project and wider dissemination of audio feedback as best practice is already underway. Such dissemination focuses on the key benefits of using audio feedback for students, as well as making practical recommendations as to how it might be incorporated into effective feedback practice.

#### Student Testimonials

"Very useful as it was very accessible, high quality, easy to use, easy to understand, clear and concise. I feel that it is a very useful tool as I am able to go and listen to the feedback when I want to and not keep up to date on where I am going wrong"

"I believe this form of feedback is not only extremely informative but an easier way for students to understand where they picked up marks and lost marks in their essay"

#### Principles of Assessment and Feedback

Audio feedback can assist in embedding Principle 3 (Faster, timely, high quality feedback) and 4 (Provide opportunities to act on feedback).

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Figure 3: A screen shot of the case study

Finally, the project team worked with the Office of Digital Learning (ODL) to establish a link between their resources and the existing Blackboard learn+ wiki support pages for staff, and also to identify any gaps in that resource and develop the relevant wiki pages to address those gaps. The linked wiki support pages are available at: <http://wiki.ulster.ac.uk/display/VLESUPPORT/Staff+help>

## Dissemination, training and professional development opportunities

These resources form the basis of the work of the CoP in encouraging the adoption of the technologies, and are available through numerous University- wide learning and teaching support channels and training and professional development opportunities. Through consultation with the Head of the Office of Digital Learning (ODL) the guides will be embedded into the Blackboard Learn+ wiki staff resource, the Principles of Assessment and Feedback for Learning web pages, and are already being used in Blackboard Learn+ staff induction and in on-going training sessions

for all staff. The resources are also being used as part of the University's PgCHEP course in semester two (14-15), with a view to being incorporated into other modules on this course in subsequent academic years. In addition, the guides are available in hard copy for use in workshops, staff development and other training sessions as appropriate and as an on-line resource through the channels identified here.

The guides provide a direct link to the case studies which are available through CHERP's SupportaTAL resource, which acts as a learning and teaching online resource for best practice case studies across Ulster University (<http://www.ulster.ac.uk/centrehep/supportal.html>). The guides also provide a direct link to the Blackboard Learn+ wiki support pages and in this way there is seamless integration among all the support resources (<http://wiki.ulster.ac.uk/display/VLESUPPORT/Staff+help>).

A workshop utilising the guides and case studies was facilitated by two project team members at the CHERP Annual Conference 2015, where staff across a range of disciplines explored the use of the resources in their own contexts; hence as University wide resources, the project outputs are already demonstrating transferability. Given that this project emanated from CHERP development funding, initially only the project team were involved, although the intention was that this would be a growing, developing and inclusive CoP. Thus dissemination has also focused on how other staff might usefully develop their own resources and contribute to the growing resource base in this area for staff across the whole institution.

### Project Evaluation

The evaluation of this project is largely for the longer term, as the intention is to sustain a CoP that can effectively share ideas, resources and support for TFL. However, the evaluation of the use of each technology in practice revealed their respective benefits in learning and teaching contexts, specifically in relation to the Ulster Principles of Assessment and Feedback. The full evaluation of each is outwith the scope of this descriptive account; although the research revealed that the students who had been assessed via e-portfolios were motivated to engage with their

feedback, viewed the process positively and noted that it allowed them to identify areas they could improve on. In relation to the TurningPoint technology, 75% of the students stated that it encouraged them to attend class, finding it enjoyable and engaging, while 76% indicated that it helped with their confidence in subject knowledge. Of the students who were provided with audio feedback, the evaluation revealed that on the whole students favoured audio feedback over written feedback because they valued its benefits, including the ease of access and convenience, the level of detail of feedback, the ability to re-access and listen again and its ability to facilitate feed-forward learning. Finally, the evaluation revealed that of the students who received their feedback via Grademark/ Turnitin 83% found the tool very easy/easy to use, with 89% accessing their originality scores to improve academic writing style; 76% and 78% rated the tool as being either effective or highly effective in providing clear feedback and high quality feedback respectively, while 72% noted that it improved their academic writing style and would use the tool to refer back to the feedback for future work.

This evidence clearly indicates that these technologies have the potential for a significant impact on student learning and for incorporating the Ulster Principles of Assessment and Feedback for Learning. The support resources discussed in this descriptive account were designed as a result of this evaluation, and focus on how best to use the technologies in practice, highlighting recommendations for staff and for their use with students. Initially, numerous dissemination activities were planned as an integral aspect of the project where feedback was sought for early project evaluation. This feedback included the recommendation that the resources be incorporated into induction for new staff, notably induction to the VLE and importantly, to ensure that the CoP did not become an 'exclusive members' club. Rather, the focus on dissemination was about communicating its open, inclusive and participatory nature. Other feedback suggested that the wiki resource pages be incorporated into Blackboard Learn+ help for staff, and that the resources be integrated into Blackboard Learn+ training sessions. All of these recommendations have now been taken on board by the project team and integrated into the project. The project has been evaluated insofar as demonstrating further pedagogic evidence for the use of the tools and technologies and

highlighting some potential limitations, all of which has been used to develop the support resources.

In evaluating the potential of these resources to encourage TFL uptake, they were shared with several key influencers for their input and suggestions. The feedback included that they are a “wonderful resource and one that we would use to enhance our own training sessions” (Head of the Office for Digital Learning [ODL]), with further suggestions such as embedding them into the Principles web pages. The case study content, design and format was commended as “such a useful example of good practice” (Director of CHERP) and was subsequently circulated to all Faculty L&T Coordinators to help provide a template for the SupportTaL resource. Finally, the tutors on the PgCHEP programme requested the resources for integration into teaching on the course. All of this activity further underlines the value of the resources and will lead to their wider dissemination across the University.

There is also evidence of increased adoption. For example, within the Department of Hospitality and Tourism Management alone, four members of staff have now embraced audio feedback, four have utilised the e-portfolio tool (including two new members of staff) and along with two other colleagues the project lead has introduced Turnitin/Grademark for the first time this academic year. The project and related resources are also being used as the basis for PSR activity within the Department of Hospitality and Tourism Management, whereby two more experienced members of staff are mentoring three relatively new members of staff in the use of some of the technologies across academic year 2014-15. In addition four project team members mentored at least one member of staff within each respective Department through the implementation of e-portfolios, GradeMark/Turnitin, Wimba Voice authoring and Turning Point technologies.

The project therefore is beginning to evidence the “ripple” effect of incremental change in relation to an improved student experience as a result of the increased adoption of the tools. Hence, there is evidence that mentoring and supporting colleagues in a one-to-one supporting role,



along with the use of the resources developed as a result of this project are beginning to have a positive impact in terms of uptake by other practitioners across disciplines and on the student experience, as informed by the pedagogic evidence underpinning this project.

## Conclusion

So far the work of this CoP in developing support resources and encouraging the uptake and adoption of TFL has been encouraging, evidencing an increased uptake and adoption of the technologies, through the provision of the resources and support and mentoring. It is also the intention of the project team to develop more of these types of resources as we increase the pedagogic evidence base of how innovative tools and technologies can best support the student learning experience within the Business School and how that can be put to best practice in L&T across the institution. It is envisaged that as the project rolls out across the University, uptake and adoption will be increased and expanded to the development of resources for the use of other tools and technologies, with further workshops and seminars already planned in that regard. In this way the project team envisage this CoP to grow, develop and be sustained across the institution.

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## Short Communication

# Implementing PeerWise to engage students in collaborative learning

Stephen McClean

### Introduction

PeerWise (<https://peerwise.cs.auckland.ac.nz/>) is an online tool which encourages collaborative and independent learning by facilitating students in the creation and sharing of multiple choice questions (MCQs) relevant to their course of study. Students may answer, rate and comment on questions set by peers and follow authors who create high quality MCQs. Students may also provide feedback that is made available when a correct or incorrect answer is chosen. If students feel that a question is not written clearly, or that the answer provided is not correct, this may be challenged and the question edited or withdrawn. As students interact with PeerWise they build up a reputation score and earn badges, thus providing an incentive for engagement.

PeerWise was created by Paul Denny (Denny, Hanks, Simon, & Bagley, 2011; Denny, 2013) and resides on servers at the University of Auckland, New Zealand. A large number of universities and colleges worldwide have employed PeerWise in their courses and an increasing body of literature is growing around its application as a collaborative learning tool. Studies exist demonstrating how PeerWise has been used in subject areas such as Organic Chemistry (Ryan, 2013); Physics (Bates, Galloway, & McBride, 2012); the Biosciences (Tierney & Sykes, 2011); Teacher Education (Mackey, Davis, Donna, Gikandi, & Dabner, 2012); Medicine (Rea & McClure, 2012); Nursing (Rhodes, 2013), and computing (Devon, Paterson, Moffat, & McCrae, 2012).

### Description of the PeerWise Activity

PeerWise was used for the first time at Ulster University in 2013/14 in a year one Biochemistry module in the School of Biomedical Sciences with 195 students enrolled. The module has a broad diversity of students drawn from courses within the Faculty of Life and Health Sciences,

namely, Biology, Biomedical Sciences, Dietetics, Food and Nutrition, Human Nutrition and Pharmacy.

Students entering University bioscience courses often come with a good prior-experience of biology and chemistry at A-level or equivalent. Biochemistry, however, is a topic that many have not encountered before and therefore require additional support in their learning. Students often cite online self-assessment questions as a useful means of support when dealing with new topics; therefore, it was decided that two important factors would be addressed by implementing PeerWise:

1. Students would be prompted to engage more with module material as they fulfilled the task of creating MCQs relevant to the topics being covered.
2. A repository of self-assessment questions would be created by students for revision and peer learning purposes.

Given the relatively large numbers of students on the module, an online system which would facilitate easy registration and management was required.

### Design of the PeerWise Activity

An account was created on the PeerWise website (<http://peerwise.cs.auckland.ac.nz/>) for Ulster University and a module area with its own unique identification number created for BMS102 Biochemistry. A list of student ID numbers was uploaded to the site as “identifiers” of the students to be involved. Students were provided with the module identification number and then asked to create an account on the PeerWise site. Only those whose student identifier number had been previously uploaded were admitted to the module area. While use of student number is not a contravention of Data Protection policy, it has been suggested that an identifier other than student number be used for better data security. For PeerWise, any identifying number may be assigned to a student so long as a record is maintained by the lecturer to track activity; all activity by students is anonymous to the peer group.

The PeerWise website contains a number of user guides for both staff and students and the processes of registration and participation are intuitive. For the BMS102 activity, students were asked to complete the following tasks on PeerWise:

1. Create 1 MCQ per week of teaching;
2. Answer any 3 MCQs (created by other students) per week of teaching;
3. Comment on any 2 MCQs (created by other students) per week of teaching.

A small number of coursework marks (5%) were assigned to students who successfully completed the activity. Additional marks were also provided to those who had higher levels of engagement with PeerWise as evidenced by their reputation scores. Student engagement was measured at two checkpoints, one in week 8 and the other in week 12. This encouraged students to engage throughout the semester and not leave all of the activity until week 12.

Some of the PeerWise questions written by students were included in two summative class tests during the semester, providing a further incentive for engagement. Students were provided with a guide on how to write good MCQ questions along with guidance on the activity to be completed. A link to these documents is provided at the end of this report.

## Results and Impact

By the end of the teaching period 2,411 questions had been created by 194 out of the 195 students on the module; 28,239 answers had been provided and 9,275 comments posted, evidencing a high level of engagement. Figure 1a shows the number of questions submitted per day from 28<sup>th</sup> January 2014 to 1<sup>st</sup> May 2014, the maximum being 203 questions authored on 21<sup>st</sup> March, the date of the first checkpoint to measure student engagement.

Figure 1b provides information on the number of questions answered per day. High levels of engagement are noted around 25<sup>th</sup> February (2,767

questions answered) and 1<sup>st</sup> April, the dates of the two summative class tests, indicating that students utilised PeerWise extensively in their revision of module material prior to these assessments. Students were informed that the sessional examination in May 2014 would not contain PeerWise questions; despite this, there is a clear evidence of PeerWise being used as a revision tool with in excess of 3,100 questions answered in the period from 28<sup>th</sup> April to the date of the examination on 12<sup>th</sup> May 2014.

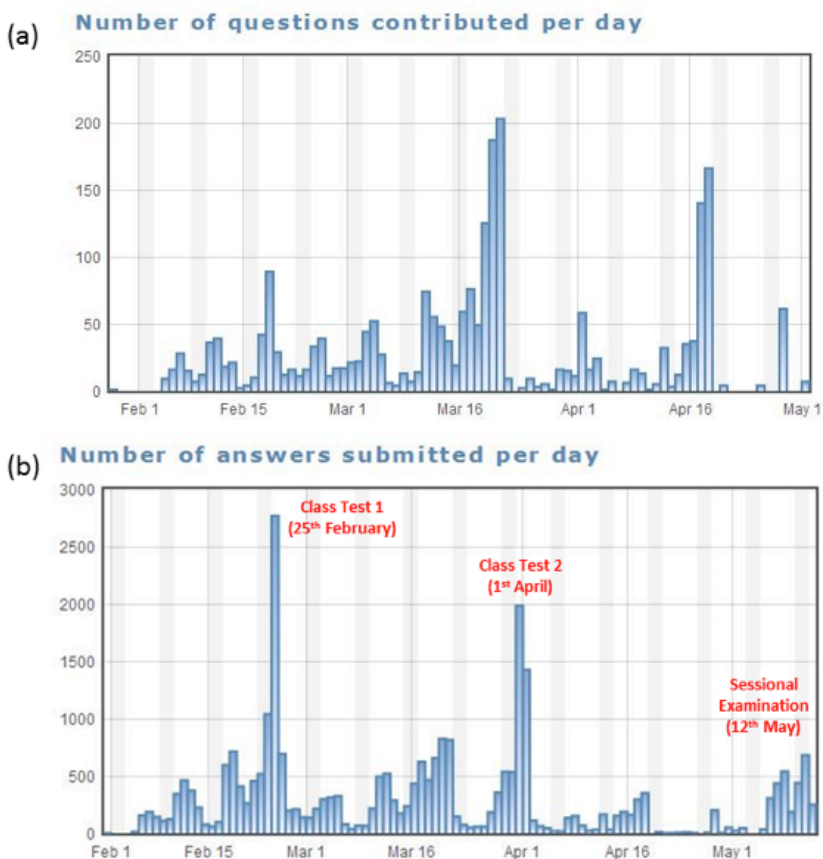


Figure 1 (a) Summary of the number of PeerWise questions contributed per day during semester two, 2013/14 on the module BMS102 Biochemistry.

(b) Number of answers submitted per day with the dates of summative class tests and examination indicated.



Module evaluation was carried out using the Ulster University Module Feedback Survey ([feedback.ulster.ac.uk/](https://feedback.ulster.ac.uk/)). For BMS102 Biochemistry there were 86 respondents from a total enrolment of 195 students (44.1% response). In the qualitative comments in response to the question “What did you feel was particularly good about this module?” a number of students commented favourably on PeerWise.

This is evidenced by the Wordle ([www.wordle.net](http://www.wordle.net)) in Figure 2 of all comments received in this section. The larger the font of the word, the more times the word appears, and “PeerWise” dominates.

Some comments from students are provided below:

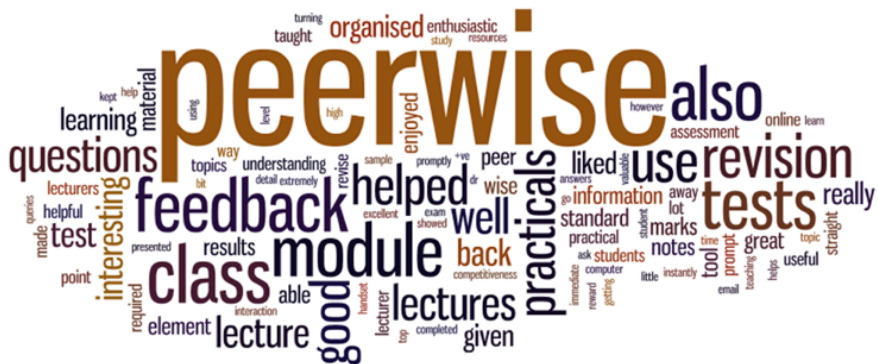


Figure 2: Wordle ([www.wordle.net](http://www.wordle.net)) derived from qualitative responses to the question “What did you feel was particularly good about this module?” from the Ulster University Module Feedback Survey ([feedback.ulster.ac.uk/](http://feedback.ulster.ac.uk/)) for module BMS102 Biochemistry in the 2013/14 academic year.

"I enjoyed the PeerWise element as it encouraged me to go out and learn my notes. I liked the competitiveness."

“Peerwise was a good learning tool”

"I felt that the introduction of PeerWise made this module better because you were able to ask your fellow peers about the topics learnt and you were able to answer their questions also."

“PeerWise was great for learning and revision. I don’t have PeerWise for my other modules and it really helped to reinforce my learning.”

“Peerwise is a valuable revision tool as I prefer to revise through completing questions, however there can be the odd repeated or non-relevant question, which is a little time wasting.”

A small number of students did suggest that PeerWise could be improved with regard to how marks were assigned, especially for higher levels of engagement above the minimum requirements. One student commented: “Not interested in Peerwise, people are just using it to get marks, it’s hard to learn from it”

### Practitioner Reflections on PeerWise

PeerWise encourages an active approach to learning and facilitates students in creating a large bank of multiple choice questions for revision purposes. Students do require an incentive to take part, and a number of coursework marks were awarded to those who engaged. Additional marks were provided to those who achieved high reputation scores or high numbers of badges. On reflection, this may have detracted somewhat from the fun element of the PeerWise activity and it might serve better to provide marks only for those who achieve the set quota of questions created, answered and commented upon. A leader board was used based on cohort group within the module and this added to the competitiveness of the activity.

It was evident that many students exceeded the minimum requirement for participation, with one student creating in excess of 90 questions and writing over 1000 comments on questions. This behaviour appears to be in agreement with colleagues who have implemented PeerWise elsewhere (Ryan, 2013). In some cases the comments written are short and uninformative, being more social in nature, while in others they add additional information about the topic being examined or challenge an answer provided.

### Conclusion

In our hands PeerWise provided additional support for students and encouraged active learning. However, as with all teaching innovations, the context in which it is implemented should be carefully considered

rather than a “blanket” imposition across all modules on a course. While the literature reports that the use of PeerWise is successful in improving examination performance (Rea & McClure, 2012), we have still to evaluate this with our year one students.

### Acknowledgement / Supplementary Files

Dr Pedro Barro, Kingston University, is thanked for assistance in implementing the PeerWise project at Ulster and for supplying user guides. Documentation supplied to students at Ulster is available to download from the following address: [bit.ly/PeerWiseFiles](http://bit.ly/PeerWiseFiles).

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## Provocation Article

### Up close and personal?

## The changing nature of learning in digital environments

Andy Jaffrey and Brian Murphy

The digital world we inhabit is littered with choice. We set preferences here; we choose information there; we source services everywhere. Digital brings all manner of things up close and personal. What, then, is the response of higher education to personalisation? It is in our digital learning environments where we meet personal up close.

This article explores the concept of personalisation through the often antagonistic propositions for two forms of learning environment: an institution's (managed) Virtual Learning Environment (VLE) and the (constructed) Personal Learning Environment (PLE) of an individual. A key distinction between these environments is that the institutional VLE is centralised and contains all approved administrative and pedagogic tools, and a 'firewall' of the registered learners. The PLE, in contrast, is a learner-centred construct with potential for unbridled connectivity. Mott and Wiley (2010), called for the PLE to replace the VLE in higher education. The debate still rumbles today. This article explores the controversy in this proposition. A pivotal point in this debate is that formal education requires an assured and supported approach. Quite apart from academic assurance, there are also statutory and regulatory responsibilities on the learned institution to ensure an equitable learner experience, equal opportunity and absence of discrimination on grounds other than of ability. It is through this prism that the degrees of freedom in personalisation find colour.

### The Virtual Learning Environment

Styles (2007) expounded the notion that the VLE is dead. The primary argument was that VLEs are a vestige of a didactic model of higher education with a structure that constrains learners who should otherwise be liberated to connect, construct and personalise their learning - a

powerful ambition that sits well with any form of learning, be it online or in-class, personal or formal. But the proposition is based on a caricature of the modern VLE.

VLEs need not be as flat or restrictive as Styles makes out, or as they were over a decade ago. VLEs are becoming more sophisticated. The UK Technology Enhanced Learning survey of the University and College Information Systems Association (UCISA, 2014) demonstrates that VLEs are now an established aspect of a modern higher education provider. Trends show greater interoperability with other systems such as library, student records, timetabling and the use of open educational resources and other forms of content sourced from the internet.

There is much scope for adaptive personalisation through technology extensions to the VLE. Mobile compatibility increases learner choice of device. Lecture capture allows flexibility to review a session and can provide compensation or substitution when appropriate. Learner analytics can help inform stratification of learners and better focus of pedagogic design or support. Synchronous technologies allow remote attendance and remote interaction by many when required. Asynchronous media facilitate learners in different time zones or with different availabilities. Weller (2007) predicts, in addition, that: 'VLEs will permit users to integrate their preferred tool within the overall framework, while providing a default option for those who do not have one' (p.119). All of these are examples of technologies allowing adaptation to the learner circumstance; some at the macro level and some at the personal.

Learning design is also concerned with personalisation, in that all learning is personally constructed through content and developed through dialogue. As reliable content becomes openly accessible via the internet, its distribution and use become scalable. On the large and distributed scale, technology-facilitated dialogue with self, peer or educator creates higher value than the content alone; it creates learning. Examples of where technology can enhance dialogue on content are:

- co-operation amongst students;

- time on task outside formal class;
- timely and personalised assessment and feedback;
- adaptation to diverse learning styles.

These features make learning more personal and more social and mark a shift in pedagogy from the didactic to the dialectic. (This is not to decry the didactic which has its appropriate place in the learning design spectrum).

These dialectic features, of course, are not new, but were first mooted by Chickering and Gamson (1987). The principles were drawn from research of 50 years of prior practice with a focus on: ‘how teachers teach and students learn, how students work and play with one another, and how students and faculty talk to each other’. Chickering and Ehrmann (1996) later published guidance for implementing the principles with technology long before the widespread use of the internet. These principles can be found today at the core of the annual US National Survey of Student Engagement (Kuh, 2001). The report for the NSSE 2014 is the culmination of over 350,000 returns across more than 620 institutions.

Early VLEs tended to be flat repositories of information or resources. Some may have had a didactic structure with machine testing and selective release. Neither afforded much scope for personalisation except in choice of when and from where to engage with the content. But it is possible, with appropriate learning design and content curation, together with collaboration technologies, to embrace the dialectic and open the personal and social aspects of learning through the VLE.

In the final analysis this amounts to the VLE becoming more sophisticated and better at facilitating the dialectic approach. A VLE as sophisticated as this, however, remains distinct from the PLE; it embraces an adaptive capability for personalisation but, significantly, it remains within a safe-guarded institutional setting.

The safeguarding point is important. Universities carry significant responsibility on behalf of the learner, on matters of reputation, authority

and quality. In this connection it is no coincidence that, to date, it has been the widespread acceptance of the standing of higher education as the bastion of standards that has ensured their resilience to the unbundling of services witnessed in sectors such as finance, publishing and communications (Selwyn 2013).

### The Personal Learning Environment

PLEs concern learners taking control of and managing their own learning, including learning goals, content and networks. These, of course, are the hallmarks of gradueness. Proponents argue that in the post Web-2.0 era the PLE has come of age: a node in a web of content and distributed connectivity, drawing in services, e.g., certification, as required. Significantly, as a learner-centred construct, the PLE is free of monetary cost to the learner, at least to the point of buying services. But the learner has the freedom to construct, engage, follow, interrupt, pace, or connect. Critically, neither he nor she will fund the privilege or consequence of that choice. The converse is true of regulated higher education.

Ultimately, the PLE is not an institutionalised system; it is a self-managed and unregulated construct of interoperating systems. Quality will be as variable as the individual and randomness may be the norm. Indeed, a review (Universities UK, 2014) has shown that coping in this less structured educational environment is the prevail not of new entrants to higher education but of the elite, mature, postgraduate and digitally literate learner. The latest evidence derived from a report on massive open learning courses (Harvard and MIT 2014; 2015) shows that most open learners are returning to their discipline to top-up learning.

In the do-it-yourself world of the PLE the choice of tools can be daunting for the learner. The independent Centre for Learning and Performance Technologies has compiled a directory of tools and applications for online learning. Amongst the most used are: Wikipedia, Twitter, Google Docs/Drive, YouTube, Dropbox, Evernote, and LinkedIn. Most of these have free versions. Intriguingly, none could be described as innovative or as bespoke learning technologies. Most, if not all, would be disallowed as a platform or tool in many institutions where concerns over quality, safeguarding,



compliance, reliability and consistency would prevail.

In the open world, a learning journey may start with an instinctive interaction with a platform such as Wikipedia to find a 'suitable' resource. This implies trust that the wiki principle will ensure emergence of structure and that peer-to-peer self-regulation will vouch for reliability. In addition, dangers lurk in the unregulated world; the adage 'buyer beware' comes to mind. This applies when buying services such as content or accreditation. Some would argue that this is no worse than the dangers faced by consumers every day in the 'real' world. Consumer law may provide some protection but regulation of the web is notoriously difficult.

Roberts and Greteman (2013) have portrayed a utopian glimpse of something closer to an institutionally supported PLE. This addresses the issues of quality and randomness. They have articulated a more 'universal' 'university: a 'Cloud U'. The Cloud U, it is proposed, could exploit better the facility of digital platforms; one wherein students define their own pathways, purchasing education course-by-course, and choosing the formats that best suit their preferences, such as asynchronous lectures, synchronous micro-classes, interactive tutorials, e-portfolios etc. This is the ultimate in personalisation, but is it highly machined rather than personal. It will not replace traditional high education, but may have a place for particular educational markets. It does, however, place the platform provider at the top of the educational food chain in the virtual space where learner and providers of various learning strands meet. Significantly, within a year of this proposition, Google and edX announced their collaboration to establish the non-profit 'mooc.org'. This brings together a powerful alliance: a ubiquitous internet service provider and a consortium of elite higher education institutions - a development that will be closely monitored by the sector.

Personalisation in the PLE sense is highly individual. It is a powerful constructivist concept but, at least until a Cloud U materialises, it is only effective in the hands of the assured and accomplished learner. In the hands of the novice it is both daunting and dangerous.

## Up Close

The authors of this article are in no doubt that the impact of social and professional networking sites, open-source educational products and degrees of personalisation will soon be more obvious on the learning landscape of institutions. The sector has not yet scratched the surface of the web of content and the wealth of opportunities that are available through connectivity. Digital tools will increasingly enable content and dialogue to be blended and filtered in more diverse, scalable and adaptive ways than the physical classroom alone permits. For the expert educator there is scope to orchestrate connection, communication, and collaboration; and there is an opportunity to become architect, designer, orchestrator, arbiter and validator.

As for the call for the PLE to replace the VLE, this article holds that they are not interchangeable. VLEs – the standardised, regulated, institutional variety – are now the norm. PLEs have their place in the personalisation spectrum, but one cannot transpose the unregulated and the regulated.

In conclusion, learning is implicitly a personal and a social experience. Learning environments and practices that facilitate this lead to a better learning outcome. In the modern digital era, ubiquitous connectivity and technologies provide a new dimension to, and a multitude of, opportunities for personalisation.

There is a clinical analogy in personalised medicine. Personalised medicine is more effective because it is tailored to the individual, but we still have medical institutions researching, and clinicians diagnosing and treating. Moreover, it is the clinician that designs the personalisation, not the patient. The patient still exercises choice in the options and adaptations that the clinician considers apposite. So too does personalisation in higher education. A grand design approach is required: the institutional digital learning strategy and infrastructure should enable it, and learning design should adapt for it at the programme, module and learner levels.

When it comes down to the student experience, it is the informed choice of the educator deploying technologies with pedagogies that will make the difference that is most personal to the learner.

The VLE is far from dead; it is a sleeping giant.

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## Provocation Article

### Does pedagogic research warrant independent ethical review by a research ethics committee?

Kay Hack

The importance of pedagogy and its role in quality enhanced teaching has led to the emergence of pedagogic research as a discipline over the last decade (Canning, 2007). Much of this activity is driven by practitioners, who evaluate their own teaching practice, in their own discipline with their own students (Stierer, 2007 and Tight, 2013). Audit activities such as module evaluations and teaching quality questionnaires, are distinct from research or scholarship practices in intent if not in methodology. Evidenced-informed scholarship aims to provide recommendations for policy or action at a local level, for example in a module, program or institution, whilst pedagogical research requires a systematic analysis of teaching or student learning, with a view to generating and sharing new knowledge (Morón-García and Willis, 2009). Both quantitative research designed to generate or test a hypothesis and qualitative research which identifies or explores themes should follow a defined methodology that is transparent and open to critique (Bortolloti and Heinrichs, 2007).

The distinction between audit, scholarship and research is not merely one of semantics; whilst all of these interventions should be ethical, typically university regulations stipulate that only research requires ethical review. Wilson and Hunter (2010) argue that research should be treated as an exceptional case requiring more stringent legislation than other potentially more harmful activities, firstly to ensure continued public trust and, secondly, because of the unequal distribution of risk and benefit that is manifest in research trials. They argue that this necessitates review by ethics committee for an impartial and informed evaluation of the ethical issues.

However, does pedagogical research pedagogical warrant the exceptional status that requires regulation by a review process grounded in medical science and informed by Nazi atrocities and questionable post-Second

World War medical practices? To answer this question it is necessary to identify the risks and benefits of pedagogic research, - and importantly which parties are exposed to those risks and benefits. Secondly does pedagogical research require more oversight than other teaching evaluation activities, or does the subtlety of the distinction between research and scholarship discredit the whole process? Finally, is an ethics committee in a better position to identify the ethical issues that arise in a project than the teachers or the students on whom they will have an impact?

As publicly funded institutions, UK universities are accountable both to their own staff and students and the wider academic community. Students place their trust in both the institution and individual teachers to act in their best interests (Macfarlane, 2011). In order to retain this trust, universities have adopted policies to ensure that research performed under their auspices is both legal and ethical (Hack, 2012). For research that does not fall under the remit of external review bodies, UK universities have established their own processes for ethical review of research involving human participation (Anderson-Ford, 2007; Hunter, 2007). Ulster's processes, which require that 'all research involving human participants must be reviewed through the filter and ethics committee process as appropriate' (PVC Research, nd), are amongst the most robust observed in any UK Higher Education institution (Hack, 2012). However personal communication with the Chairs of the Ethics Filter Committees suggests that pedagogic research is not always submitted for this type of review, as indicated by the following illustrative comment:

'Actually I think we've only had one [pedagogic research] application ... in the last couple of years. I suspect there are more out there, though, and that colleagues either don't know they should be seeking review or are pretending they don't know'

This local finding is supported by evidence from other institutions (Regan et al., 2012, Doyle et al., 2010). There are many reasons postulated for this lack of compliance, including:

- Confusion as to when activities meet the criteria to be defined as research;
- Longitudinal studies which use historic data collected prior to initiation of the research project;
- Action research projects or scholarship activities which were initiated in response to a specific, local issue which subsequently developed, either following iterations or when combined or compared with other similar small-scale projects, into a substantive research project;
- The extent to which data mining projects which access corporate and public data comply with the Data Protection Act (1998) or whether they require separate approval;

Ethical review is required in biomedical research because the risks and benefits are not distributed with equity; those undertaking the risks typically do not receive any direct benefit. However the benefits of pedagogic research are usually realised within the community (school, faculty, institution or discipline) undertaking the risk; whilst students bear the burden of the research, they are also positioned to realise the benefits. The teacher / researcher undertakes reputational risks of a poorly designed or executed project, but equally can gain professional advancement or an enhanced reputation from dissemination of the project outcomes. Finally, the institution benefits from having an active pedagogic research community, but risks losing trust of students and staff from either an overly-taxing review process, or if they are negligent in ensuring the protection of research participants. The aim of research is to improve society through the generation and dissemination of knowledge; pedagogic 'research' which may not be generalisable beyond the institution or discipline in which it takes place still has the potential to improve the education or experience of current and future students.

Teachers are usually interested in publishing their findings; indeed, it is considered to be a responsibility of the researchers to the participants and the wider academic community that they 'seek to make public the results of their research for the benefit of educational professionals, policy makers and a wider public understanding of educational policy and practice' (BERA, 2011,pg10). It may be argued that ethical review is

required in order to publish study outcomes; however, journal editors only require that the study has undergone the appropriate ethical oversight processes. Journals such as ‘Scholarship in Teaching and Learning’, ‘Educational Action Research’, and the journals published by the Higher Education Academy all report on activities, including case studies, practice papers and action research which were not originally envisaged as research, and, therefore, did not require ethical approval.

Applying accepted definitions of research to discipline-based pedagogic research in the HE sector is problematic: quantitative pedagogic research is frequently carried out on a small scale that does not produce statistically significant results; similarly, much qualitative research, whilst having internal validity, provides no evidence that it may be generalised beyond the cohort or locality where it was performed. Institutional stipulations that require independent ethical review of pedagogic research can be circumvented by justly arguing that the activity does not meet accepted definitions of research.

Whilst the majority of pedagogic research is survey based and collected anonymously (Tight, 2013), a wide range of research and data collection methods may be employed, some of which may incur substantive burdens. However, all three of the stakeholders: students, teachers and the institution, have a vested interest in ensuring that ethical and robust pedagogical research is undertaken and disseminated. The primary driver for teachers in Higher Education to undertake pedagogic research is a desire to improve practice through a deeper understanding of how students learn; their motivations and barriers (Stierer and Antoniou, 2004). A consideration of the ethical issues is a fundamental characteristic of certain professions including teaching:

‘...ethical constraints and considerations ...are actually constitutive of such occupations... no-one could or should be considered a good doctor, lawyer or teacher—whatever his or her degree of technical efficiency and effectiveness—who conspicuously fell short of certain fundamental moral standards and aspirations. (Carr, 2006, p172).



There is a widely-held view that the majority of discipline-based pedagogic research is low risk and the requirement for ethical review is an overly burdensome and bureaucratic practice developed by risk-averse institutions (Gormon, 2007). Indeed, Gunsalus (2004, p 370) asks, ‘Why are we choosing to spend resources-including our own credibility- on very low-risk activities?’ This scepticism can contribute to the observed lack of engagement with review processes.

The argument that pedagogic research requires more stringent legislation than other scholarship activities in order to maintain trust and protect research participants has been explored and rejected. An alternative approach is to situate pedagogical research within an ethical infrastructure which facilitates constructive dialogue between all stakeholders. Ethical approval should not be a hurdle, but an opportunity to reflect on research design and receive pre-study peer review; embracing a more constructive approach may go some way to instil confidence and compliance with the process.

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## Student Reflection

### From EDGE to employability

Jack Kendall

The Ulster EDGE (Engagement Development Graduate Employability) award is an opportunity to improve the employability skills of Ulster students its official recognition allows students to evidence their input into activities outside of their chosen degrees. This award was introduced as Universities recognised the need to aid students in their ability to evidence and accredit their extra-curricular activities (CIB and NUS, 2011). To be awarded the EDGE award, students must complete four activities, each requiring roughly thirty hours. Each activity has identifiable learning outcomes and assessment.

I signed up for the EDGE award as I was keen to identify activities that would expand and develop my skill set, increase my chances of gaining a better paid work placement in my third year and enhance my future employability. I was attracted to the Science and Ethics EDGE Activity (SEEA), which is designed to increase the interest of Year 12-14 school pupils in the ethical issues that arise from developments in medicine and science, and uses workshops, debating and an essay competition to promote discussion and debate. I felt my participation would build on my existing interest in debating as well as develop my teamwork and communication skills through working with pupils. Moreover, it was relevant to my degree programme in Biomedical Engineering, and an opportunity to provide information on the courses available to pupils considering a career in the health and life sciences. I also believed this project, which promoted interaction between pupils, students and staff, would help pupils to examine their views on ethical issues and to present fact based arguments to support their opinions.

#### The Workshops

During the workshops my role was Workshop Facilitator, which entailed helping to create a relaxed welcoming atmosphere for the pupils and to providing them with information about university life. This gave me

the opportunity to develop skills such as working with other students, teaching staff and the public, and I was able to cite these skills when I was successfully interviewed for my summer work experience. During my work experience, I frequently interacted with both the public and with my co-workers, thus developing my skills further. Throughout the EDGE activities, my I knowledge was tested by the pupils when they were researching their topics, and I was able to help many of them whilst also learning new information myself. The workshops went well: many of the pupils came with very limited background knowledge, and their interest in following a scientific career was enhanced during the activities and supported by the information the other facilitators and I provided. This was evidenced by the feedback forms they filled out.

I suggested to the project co-ordinator that the pupils did not have enough knowledge to discuss properly some of the issues within the workshops. I was delighted to see that this observation was acted upon, and in the next workshop the pupils were given iPads to search for information. This impacted positively on my role as facilitator, as I now helped them develop effective search strategies to find quickly the evidence they needed for their arguments.



### The Debate evening

I also participated in the debate evening because of my previous experience in debating and public speaking. This was a competition where the pupils put forward their arguments, and a panel of judges decided which side had presented these most effectively. It was designed to help the pupils express their opinions on ethical issues, as well as allowing

them to appreciate the opinions held by others. I was part of a team that included two other Ulster University students, and were given a motion in which we advocated the use of genetically modified crops. To organise our argument we had meetings during which we discussed the topic, split up the arguments, and tried to predict the opposing team's arguments. As we were researching different arguments, we had to review each other's speeches to ensure that we were not repeating points made by someone else. We had various Skype meetings to make sure that the whole team was up-to-date with progress. The debate evening event was more formal than the workshops due to the competitive atmosphere, but again I was also able to provide the pupils with information about the University and our degrees. This event helped to develop my team working and researching skills. I benefitted from this experience whilst working on a research project as part of my undergraduate studies. It also gave me another opportunity to develop and evidence my debating skills, oral communication and presentation style.

### The Conference

My contribution to SEEA was reflected in a conference paper (Kendall et al. 2014) and led to the opportunity to speak at the 2013 Higher Education Academy (HEA) STEM conference in Edinburgh. This involved me presenting on the proceedings of the workshop, reflecting on the overall experience and, I hope, demonstrating the presentation skills I had enhanced during the workshop. The presentation required me to speak in a Pecha Kucha style, which enhanced my timing skills, my public speaking skills, and has helped me when-making presentations during my degree program. The format of the event was that in each session there were approximately five Pecha Kucha presentations, followed by open discussion. As I was a speaker, I was invited onto the panel, where I was the only student, and was able to add another point of view to most of the discussions. As the theme of the conference was 'The student's journey' it was clear that the academics in the audience appreciated the opportunity to hear a different viewpoint. By attending the conference I developed my network of contacts within the STEM discipline at different universities. My attendance also allowed me to get information on further opportunities to develop my employability, such as being a STEM ambassador and Engineers without Borders.

## Moving forward

My participation in these activities has been invaluable and has broadened my experience. The workshop allowed me to develop and evidence my skills, and helped me to gain paid employment over the summer. I am currently applying for my third year placement. The skills I developed through the EDGE activities, such as communication, team working, researching, and public speaking, can now be employed in a much more comprehensive manner than I would have been previously able to do. This has made it more likely that I will gain a better opportunity in a larger company. I have been exposed to situations and a range of people that were outside the scope of my course and first year study. My role in supporting pupils was very rewarding; it gave me a different viewpoint in terms of group working, as it was the first time I was an observer rather than being observed. Furthermore, although my panel contribution at the HEA conference was something that I had not expected, I found myself happily taking questions from academics and being engaged by the format. The experience really brought home to me that I had moved on to a higher education format, that my self-confidence had greatly improved, and that my aspirations were now directed towards the opportunities available in HE and beyond.

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